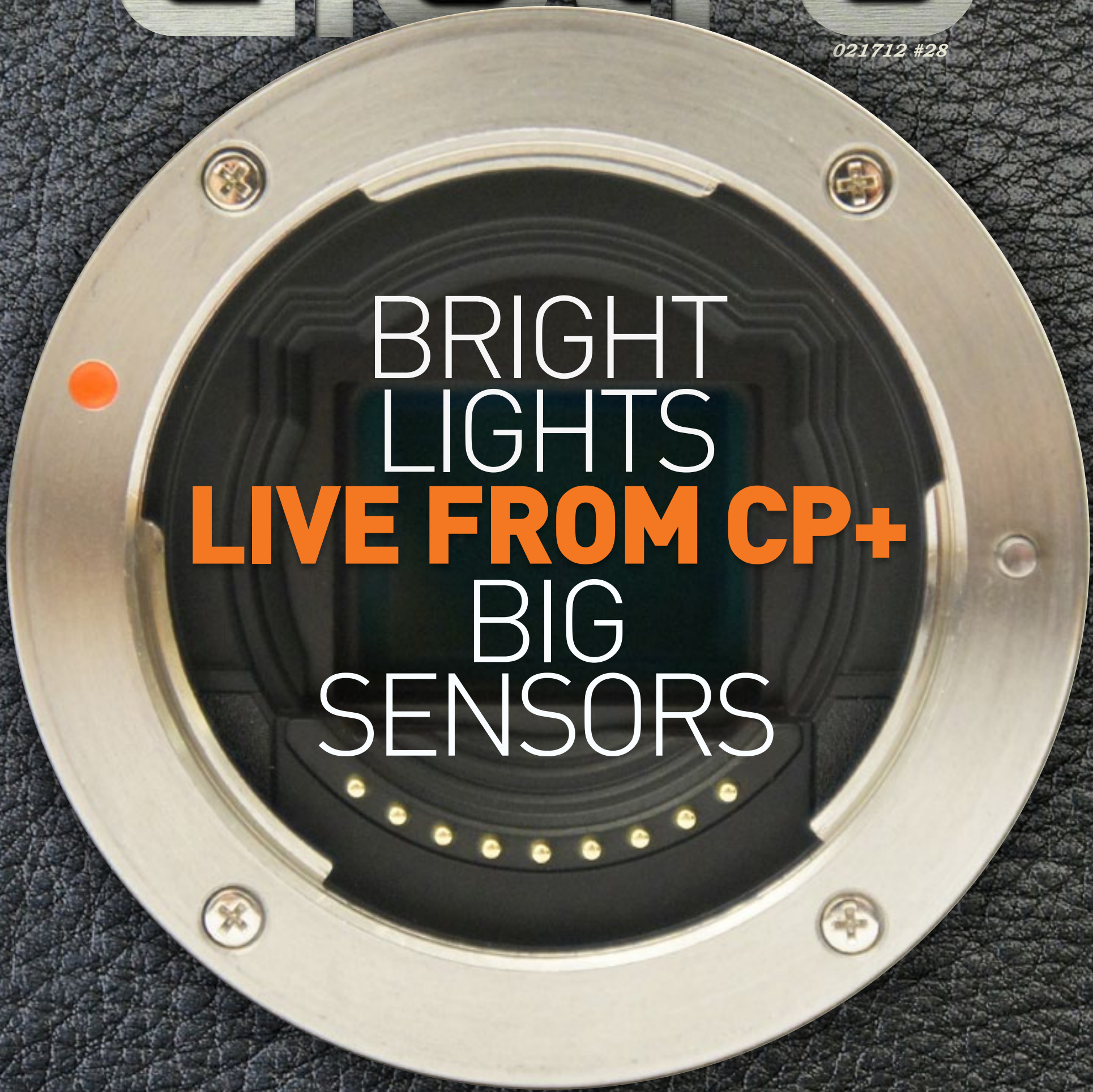
engadget

distro

021712 #28



BRIGHT LIGHTS
LIVE FROM CP+
BIG SENSORS

The $99 Ice Cream Sandwich Tablet

LG's Fashionable Prada Phone

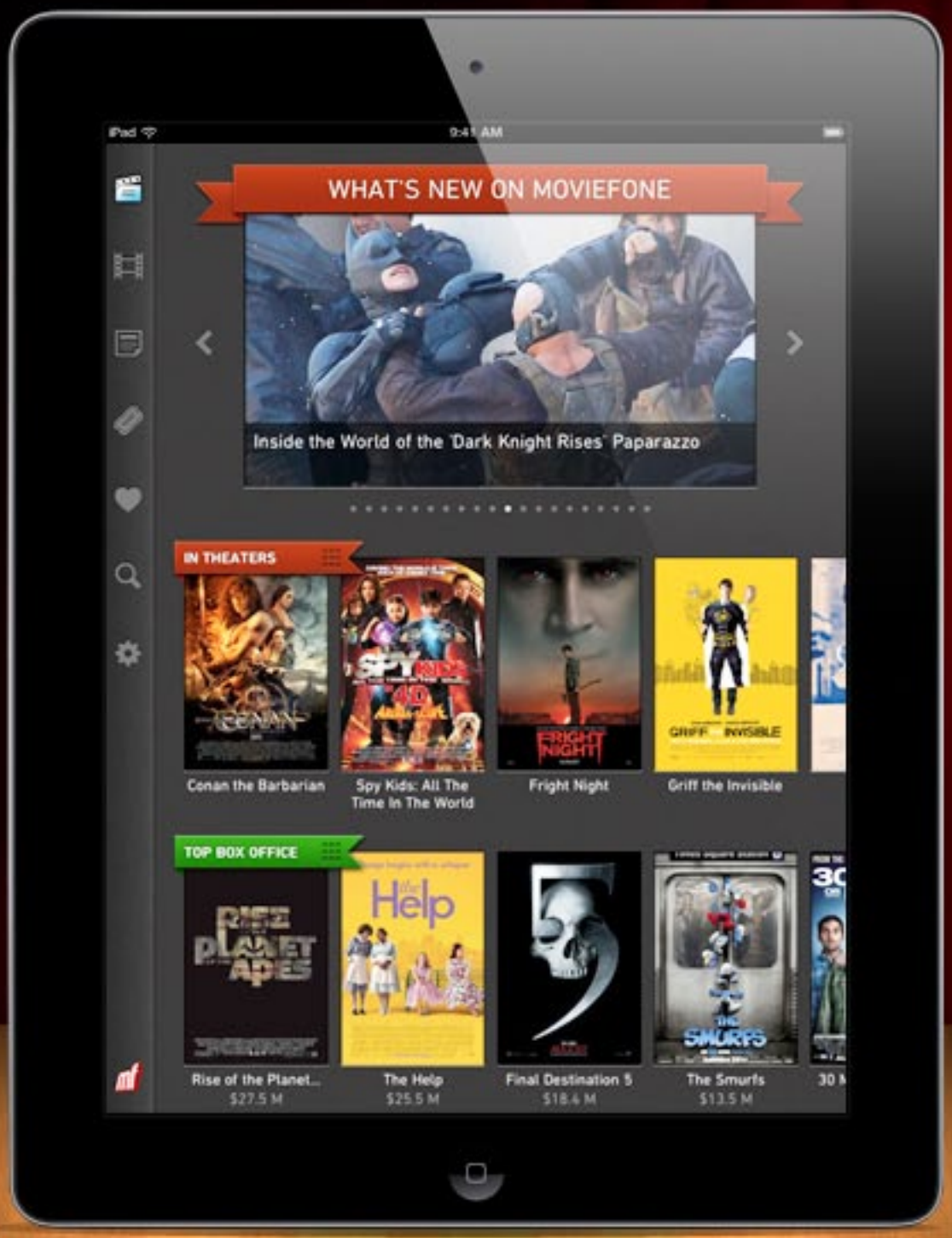
PlayStation Vita's Stateside Debut

AT&T's LTE Galaxy Note

Nicole Scott of Netbooknews

ADVERTISEMENT

moviefone



Now Showing On iPad

The best way to find showtimes, watch trailers, see exclusive clips and more.

Free Download

Available on the App Store

DISTRO Issue #28...



CP+ ATTENDEES REVIEW A HIGH-ISO IMAGE CAPTURED WITH THE FUJIFILM X-PRO1 WHILE WAITING IN A 45-MINUTE LINE FOR A CHANCE TO SHOOT WITH THE CAMERA.

»Enter

EDITOR'S LETTER
Apple Unleashes a Mountain Lion and Google-Moto Merger Gets OK'd
By Tim Stevens

THE WEEKLY STAT
You've Got (Mobile) Mail
By Donald Melanson

SWITCHED ON
Think Form Factors, Not PCs
By Ross Rubin

RECOMMENDED READING
Instagram, Big Data and the Return of the Cyberflâneur
By Donald Melanson

»Features

REVIEW
LG Prada Phone 3.0
By Mat Smith

REVIEW
PlayStation Vita
By Sean Buckley

REVIEW
Motorola Droid 4
By Joseph Volpe

REVIEW
Ainovo Novo 7 Basic
By Joseph Volpe

REVIEW
AT&T Galaxy Note
By Tim Stevens

FEATURE
» Live From CP+
By Zach Honig

»ESC

IN REAL LIFE
Logic3 PowerSleeve, HP Folio 13 and a Trio of Nintendo Handhelds
By Engadget Staff

Q&A
Netbooknews' Nicole Scott

LAST WORD
How to Be Happy
By Shannon Wheeler

Apple Unleashes a Mountain Lion and Google-Moto Merger Gets OK'd

Editor's Letter

There's definitely a continuing sense this week of things slowing down in the big lead up to Mobile World Congress in Barcelona. That conference is one of the year's biggest and, while Samsung has already lowered expectations of what it'll be showing (no Galaxy S III, for example), we're still expecting to see a lot of great mobile hardware.



But, there's one company that doesn't care about dancing around others' events, and that company is, of course, Apple. This week the fine folks in Cupertino unleashed OS X 10.8 to the world — in developer's preview guise, anyhow. For now you'll have to head over to the site to read our full impressions of this next release, but I'll say this: the line between the desktop OS and the mobile one is thinner than ever.

Apple borrowed many features from the latest version of iOS and ported them over to the desktop, including a consolidated list of notifications, a unified Messages app and, of course, great iCloud integration. There's also greater security in the form of a feature called Gatekeeper, allowing developers to digitally sign their applications, thus uniquely identifying their source. With this information Apple will now be able to remotely flag and deactivate apps from bogus developers — even if they didn't come from the Mac App Store. Don't get too freaked out yet, as users can override that if they really want that app.

One thing Apple isn't talking about yet is the iPad 3, but things seem to be go for an early March unveil. What remains to be seen is exactly what that device (or devices) will look like, but there are strong indications that it will have a much higher resolution display, and *The Wall Street Journal* reported this week that both AT&T and Verizon will sell LTE-equipped versions. There has also been a lot of talk about cheaper iPads, and I for one am hoping Apple keeps the iPad 2 around as a $399 (or less) option. It's always hard to know who to trust, but it's safe to say that right now is probably not the best time to be investing in a new tablet.

Switching over to

“In other words: don’t even think about doing any evil, Google.”

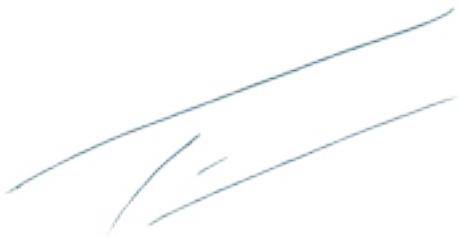
the Android side of the fence, both European and US regulators gave approval to the proposed Google purchase of Motorola Mobility. It still isn’t quite a done-deal, with China and Taiwan among others still to weigh in, but the $12.5 billion buyout is certainly looking solid. That said, the Justice Department will be keeping an eye on the proceedings, and “will not hesitate to take appropriate enforcement action to stop any anticompetitive use of SEP (standard essential patent) rights.” In other words: don’t even think about doing any evil, Google.

NASA finally flipped the switch on Robonaut 2, the golden-helmed robot destined to be something of a helper up at the International Space Station. As of now he’s not good for too much, just a brief handshake with the Commander before dutifully returning to a powered-down sleep. No word on when he’ll be taking over controls for the pod bay doors.

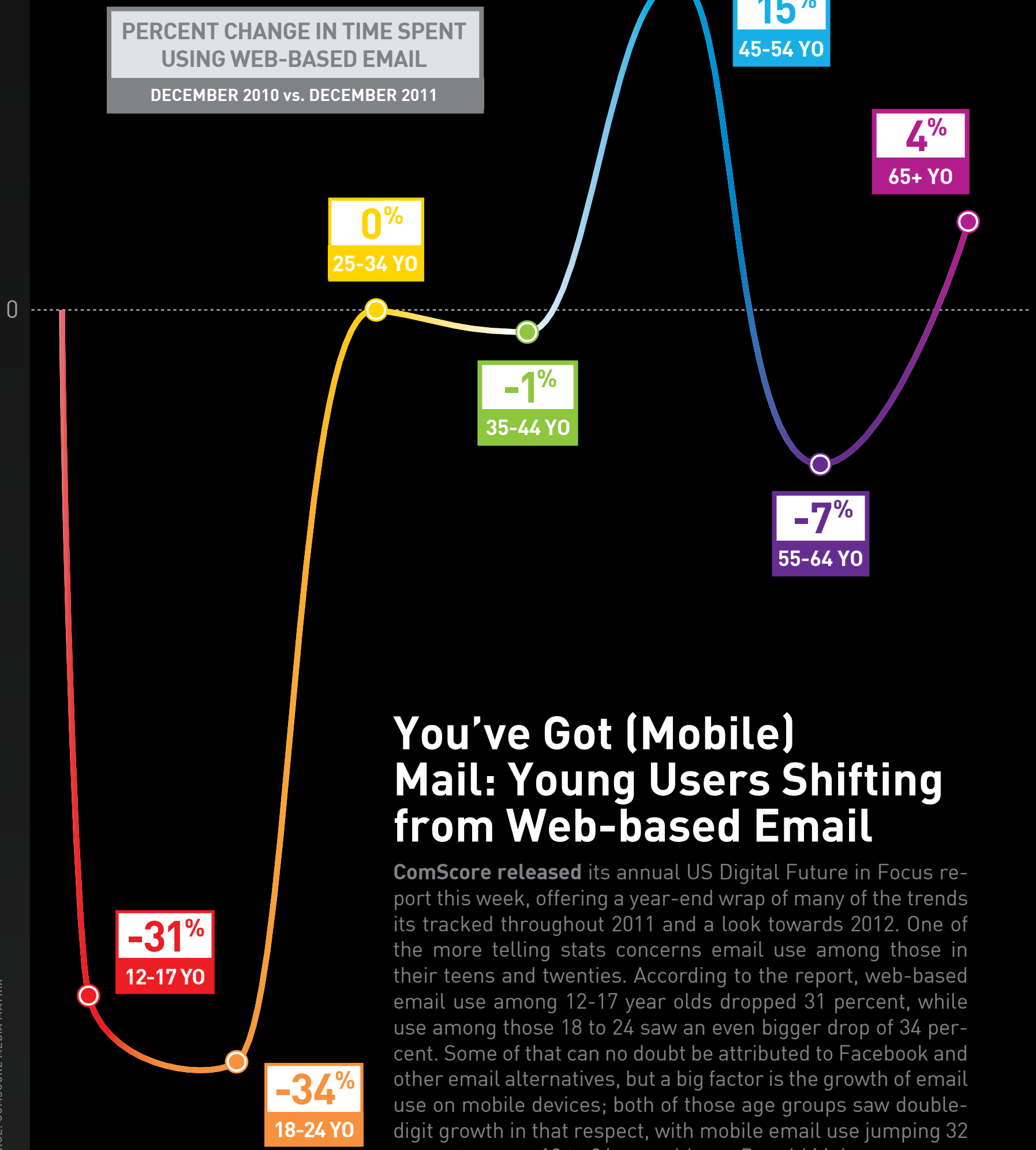
We received an interesting update from book publisher Penguin this week, mandating that any of its Kindle titles loaned out for reading must be downloaded to a computer and then transferred to the reader via USB cable — in other words, no OTA downloads. The process of wireless downloading of loaned books was said to lack “friction” when compared to actually going to a library to pick them up. It can sometimes be hard to find that micro-USB cable, but that’s still far smoother in my book than hopping in the car and driving down to the library.

Finally, CERN confirmed it will be cranking up the power on the Large Hadron Collider this year, running at 4 TeV rather than the 3.5 it clocked in at for most of 2011. This slight increase, plus a suite of other optimizations, should result in a whopping 15 inverse femtobarns of data collected in 2012. That roughly equates to something like 7,500 terabytes of data, well and truly putting the four-terabyte setup in my Windows Home Server to shame.

This week, thanks to our Distro design crew working even more overtime than usual, we have a suite of reviews for your reading pleasure. Sean Buckley takes on the US release of Sony’s PlayStation Vita, what could be the company’s last major portable gaming system that isn’t also a phone. Joseph Volpe reviews the Droid 4, the fourth iteration of the sliding QWERTY device that got me into Android. He also takes a look at the cut-rate Ainovo Novo 7 Basic tablet and Mat Smith gets posh with the LG Prada Phone 3.0, while I take a look at one of the biggest smartphones ever to hit stores, AT&T’s Galaxy Note. If that weren’t enough, we have a wrap-up of our coverage from the CP+ camera show in Japan, a new IRL, more Recommended Readings and a new Switched On, in which Ross Rubin invites you to rethink your perceptions of what makes a PC. Just don’t think too hard. This is supposed to be relaxing, after all.



TIM STEVENS
EDITOR-IN-CHIEF,
ENGADGET



You've Got (Mobile) Mail: Young Users Shifting from Web-based Email

ComScore released its annual US Digital Future in Focus report this week, offering a year-end wrap of many of the trends its tracked throughout 2011 and a look towards 2012. One of the more telling stats concerns email use among those in their teens and twenties. According to the report, web-based email use among 12-17 year olds dropped 31 percent, while use among those 18 to 24 saw an even bigger drop of 34 percent. Some of that can no doubt be attributed to Facebook and other email alternatives, but a big factor is the growth of email use on mobile devices; both of those age groups saw double-digit growth in that respect, with mobile email use jumping 32 percent among 18 to 24 year olds. — *Donald Melanson*

THINK FORM FACTORS, NOT PCs

Switched On



BY ROSS RUBIN

The iPad, launched in 2010, kicked off the post-PC era. The combination of a multitouch display and keyboardless design enabled mobile computing in a way that was not done before. On the other hand, maybe the IBM Simon, launched in 1982, kicked off the post-PC era. Widely considered to be the first smartphone, it enabled mobile computing in a way that was not done before. Then again, maybe the Osbourne I, launched in 1981, kicked off the post-PC era. After all, it was widely considered to be the first portable computer, enabling mobile computing in a way that was not done before. ¶ Or maybe it was the Psion Organizer II, often considered to be the first PDA, or the Epson HX-20, recognized as the first laptop, or the Grid Compass 1100, BlackBerry 850 or any number of other pioneering devices. Once upon a time, a PC was thought of only as a desk-bound box with a keyboard and monitor (and later a mouse). Anything that has broken from that convention has ushered in a post-"PC" era. ¶ These days, there's a lot of debate about whether iPads should be considered "PCs" for the purpose of calculating market share. The challenge is, previously, PCs primarily existed in two main form factors — desktop and notebook — and generally under an OS duopoly (at least in the consumer market) of Windows and Mac OS. One of the major points in favor of counting iPads is that there are Windows-based slates on the market and so it is not fair to count those and omit iPads or tablets running Android or other operating systems. This year, the distinction will blur even further as Windows 8 invades slates. And beyond this year, today's Windows' quasi-competitors, Android and iOS, will grow only more capable.

On the other hand,

Ross Rubin (@rossrubin) is executive director and principal analyst of the NPD Connected Intelligence service at The NPD Group. Views expressed in Switched On are his own.

including slates quickly leads to a slippery slope. Is the Amazon Kindle Fire a PC? And if so, why aren't iPod touches or smartphones? Using a Bluetooth keyboard and a monitor connected via HDMI, many smartphones are certainly capable of handling everything a desktop PC did years ago and a lot more. One could also make cases for such emerging product categories as plug computers like the TonidoPlug, "PCs on a USB stick" such as the FXI Cotton Candy, smart TVs or smart watches such as the WIMM One. Before Sony locked out the ability to install Linux on PlayStation 3s, they were used to build supercomputers.

And it's not just the hardware that has become much more dynamic. PC apps used to be confined to a handful of tasks — productivity, design, Internet access and games. These days, a range of devices from brownout-inducing custom PC gaming rigs to battery-sipping smartphones play a more central role in our lives, not only helping us to communicate, shop and enjoy limitless content options, but increasingly to do so with fluidity and ease driven by more natural input methods such as touch, speech and gestures.

As computing has infiltrated what were once otherwise dumb screens and launched new smart ones, the meaning of what is a PC is starting to dilute to the point of it being meaningless. Put another way, there is no "post-PC era"; the PC has merely marked the start of the consumer computing era. Indeed, even before the iPad came on the scene,

Is the Amazon Kindle Fire a PC? And if so, why aren't iPod touches or smartphones?

Even before the iPad came on the scene, there was no real uniform "PC" market...

there was no real uniform "PC" market with Toshiba, for example, eschewing desktops. This makes Toshiba's overall PC share seem relatively low, but its notebook share is relatively high.

There is no perfect answer. For now, though, a better way to think about what has been the PC market is to focus more on form factors. Form factors, more than input methods, connectors or available competitive operating systems, define the usage scenarios and therefore the consideration set of a computing product category.

What about combining desktops and notebooks to determine, say, Windows' overall share vs. Mac OS'? Instead, one could determine an operating system's total addressable share by considering competition in all the form factors in which the OS participates versus competitors. For example, Windows 8's share could be determined across its competitors in desktops, notebooks and tablets. Android's could be determined across smartphones, tablets and TVs. At some point, one could create a huge roll-up of smart consumer devices share with a defensible but not unassailable definition such as "has access to user-installable apps."

Much of what determines a form factor, though, is the display, and this may well break down as technologies such as scrollable displays and microprojection redefine the opportunity for a large display in a pocket-sized device. That, combined with emerging input and interface technologies that could finally kill off the keyboard and mouse, could create a blurring of devices that will make quibbling over PC classification seem trivial. The resulting debate should keep us all arguing until those with intelligence-augmented cortex implants realize how silly it all was.



Inside Instagram: How Slowing Its Roll Put the Little Startup in the Fast Lane

by Mat Honan
Gizmodo

Ask a group of Android users what iPhone app they would most like to have, and there's a good chance a majority will say Instagram, the popular retro-styled photo-sharing app. In this profile of the company for *Gizmodo*, Mat Honan talks to its two founders about the secret of their success, and gleans a few hints about just how ambitious they might be. And in case you're wondering, they're still saying that Android is their "obvious next step."

AROUND THE WEB

The Age of Big Data
by Steve Lohr
The New York Times

Anyone keeping track of the latest tech buzzwords has no doubt seen "Big Data" bandied about more and more in recent months. In this piece for *The New York Times*, Steve Lohr explains what it is, who's using it, why it's more than just a marketing term, and what it all has to do with "Moneyball."

Douglas Trumbull on How Technology, Spectacle Can Rescue Hollywood
by Todd Gilchrist
The Hollywood Reporter

The Hollywood Reporter talks to special effects legend Douglas Trumbull (of *2001* fame, among countless other classics) about his past and present work, including his new project that promises to go "way beyond anything that Peter Jackson and Jim Cameron have been doing." We're still not completely sure what that entails, but we can't wait to see it.

The Life of the Cyberflâneur
by John Hendel
The Atlantic

Evgeny Morozov kicked off quite of a debate with his recent "Death of the Cyberflâneur" essay for *The New York Times* (featured in our previous edition). Here's one prime example of the responses, from *The Atlantics'* John Hendel, arguing that the internet's equivalent of the 19th-century Parisian wanderer is alive and well.



REVIEW

Prada Phone by LG

The hardware benefits from Prada's design input, and while it's the best-looking LG phone yet, the screen lags behind what its other flagship handsets offer.

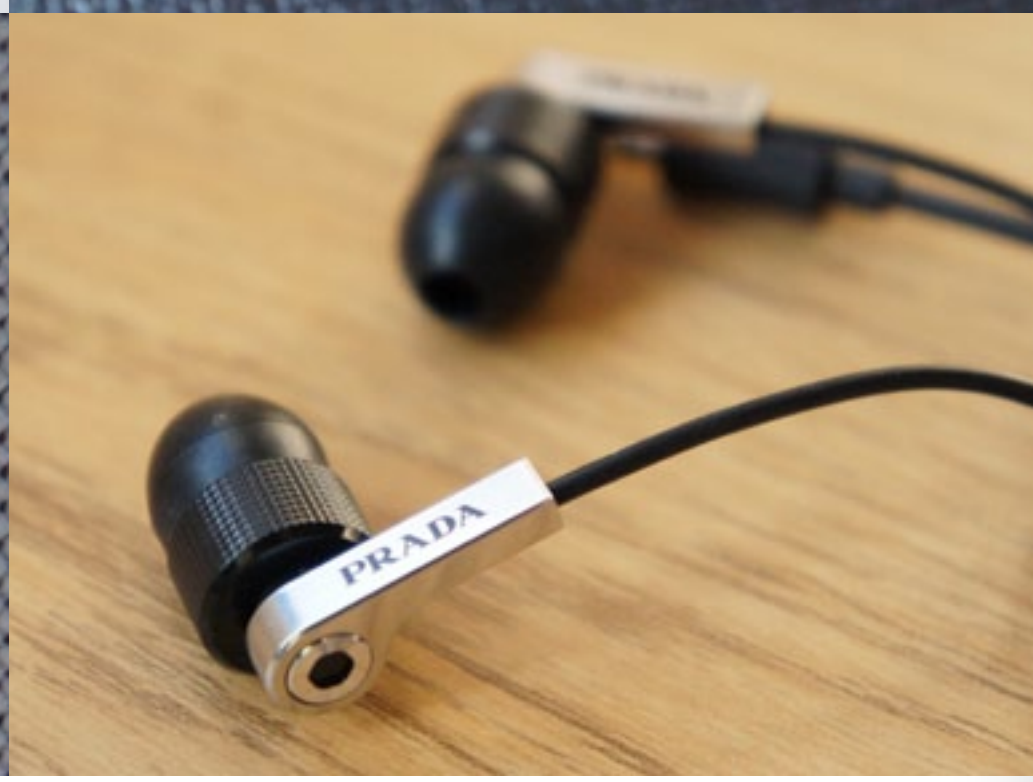
BY MAT SMITH

LG and Prada have a history of collaboration; their debut phone arrived around the same time as the first iPhone, sporting a black and white display, a petite footprint and a 2-megapixel camera. Next, the Prada II brandished a sliding QWERTY keyboard, a 5-megapixel camera and arrived at a time when WiFi functionality was a big enough deal to note on the press release. Four years on, the pair have rolled up their sleeves and attempted to reclaim a place among the top devices, with classy aesthetics backed up by strong hardware and attractively customized software. This is the team's first attempt at an Android device, and on paper it's got some respectable specifications, including a 4.3-inch NOVA Plus display, a dual-core processor and an 8-mega-









pixel camera sensor that appears to be the same one found on LG's 2011 flagship models. Granted, LG probably wasn't ever planning to include its latest HD IPS screen on a phone where branding was dominated by the *other* partner, but this smartphone still wants to appeal beyond its good looks.

It's now appeared in Korea and Western Europe and we were fortunate enough to borrow one from UK retailer Phones 4U. Are people willing to stump up the top-tier smartphone cash for a device with last year's specifications? Do people want a Prada phone? Might a fashionista be more likely to plump for an iPhone? Or is it too popular? And what about that monochrome skin? We'll talk it all over in the paragraphs that follow.

Hardware

Those Prada consultants have done a lot of favors for LG here. The phone

feels solid, despite the plastic backing and removable battery — there's been more time and thought expended on the phone's design compared to LG's Optimus family. It's in the details, like the machined metal buttons and USB port cover, the slightly recessed display and those capacitive Android buttons that disappear when the screen is off. This phone has a screen almost as long as its full name. The 4.3-inch display encompasses the majority of the front plane, with the 1.3-megapixel camera and Prada branding the only things undulating the black calm. The 9mm profile makes it a bit tricky to keep hold of at times and while Prada and LG are both quick to herald the fashion label's Saffiano pattern along the black panel, this solid plastic sheet isn't remotely like the leather that pattern dreams it was.

It does, however, help you keep a grip on the phone and will help disguise any confrontations with pocket change and car keys. Awake the screen with a touch of the power button, and LG's NOVA Plus display comes alive, with the staple capacitive line-up lighting up below. LG continues to hold onto a haptic four-button arrangement — we're still waiting to see how it juggles this setup when the promised Android 4.0 update rocks up to the Prada 3.0. Along the top edge, you'll find the power button, micro-USB port and camera button. The power button lights up once you've managed to get a finger to it, while the MHL-compatible USB socket has a machined sliding cover that feels anything but fragile. Unfortunately, the camera button is a one-press affair; all focusing will need to be done with a tap on-screen — one of the minor failings on what is a solid, professional hardware design. On the back, the textured cover is perforated by the loudspeaker, another Prada label and an embossed LG logo that's keeping itself in the shadows. The curved sides help keep it in your hands, with solid volume control keys located on the left edge.

We're now getting plenty of attractive phone designs from a lot of places, and while this is a confident entry, it's perhaps a little too safe for us — some high-end materials are what's missing here. A genuine bare metal finish instead of the glossy paint and high-end backing would have been appreciated. Anonymous blank slabs — we've seen a surfeit of 'em. We also found a pair of Prada-branded in-ear buds hiding in the base of that outlandish gift-box and, surprisingly, they're pretty decent earphones. They're loud, with a good level of base, they also come equipped with an in-line mic. It was a pleasant surprise, given the ever-so-slightly underwhelming quality of the phone's hardware.

Screen

LG's NOVA Plus display is a divisive beast. It's not Super AMOLED Plus, but more like a very good TFT display. Viewing angles are respectable, although we've been spoiled by IPS. LG's gone in a different direction and like on its Optimus Black; it's a very bright direction. It



can blast out up to 800 nits of brightness and we can honestly say you'll have no problems reading this display in full daylight. In daily use, we kept brightness at around 50 percent, and it was hardly an issue in cloudy London. The WVGA (800 x 480) resolution will disappoint many — count us in that group — and while we get that the high price does factor in that label, we're approaching the next generation of smartphones. High-definition displays are here. Fortunately, there is a Gorilla Glass coating to maintain the screen's good looks while in your pocket.

Camera

Packing an eight-megapixel camera with flash, the software behind it is largely unchanged from LG's latest Android devices — aside from the monochrome styling that we'll get to a bit later. Auto white balance performance is a little muted, but the presets generally do their job. Focal options are limited to automatic (tap to focus), face tracking and continuous, but our shots were generally well detailed, with compression artifacts thankfully minimal. There's no specific macro option, but automatic doubles up for this. The camera app includes timer and shot options like continuous shot and a panorama option which follows a logical 'line up the boxes' approach to ensure that your handful of VGA snaps align nicely. The results seemed a step above the panorama settings we've tested on the Galaxy Nexus or Xperia Arc S.

The third Prada phone also takes the



SAMPLE IMAGES





leap into 1080p video, with results comparable to the LG Spectrum — that is, light performance is good but, like its LTE half-brother, there's no autofocus. The built-in mic also works well compared to other phone's we've tested; it effortlessly picked up our voice.

Performance and Battery Life

The Prada phone 3.0 runs a dual-core OMAP4430 1GHz processor, with 1GB of RAM and 8GB of internal storage. This is expandable by a microSD slot, found beneath the battery cover, but above the battery. With phone manufacturers attempting to either limit phone storage or plump for minimal built-in storage and expect the customer to foot the bill of expansion, we're glad that LG continues to offer both comfortable built-in storage and the option of microSD expansion. In use, the phone behaves snappily, responding to our swiping whims with ease. It's worth noting that Prada and LG's home-brewed skin may take its toll on that dual-core might, but we find it doesn't impinge on performance much.

If anything, it's a shame there's no AMOLED display to "freeload" on the phone's predominantly dark, monochromatic palette. The phone arrives with a 1,500mAh battery; worrying on a 4.3-inch dual-core smartphone and compounded by Motorola's latest battery-rich RAZR Maxx. Running our typical battery rundown test (WiFi on, movie looping, screen brightness fixed at 50 percent), we managed seven hours of constant playback. For some reason — perhaps it's that luminous screen — we were pleasantly surprised. In more typical use, the fashion phone generally outlasted the day, as long as we weren't getting lost and whittling down the battery with GPS. We'd still recommend plugging it in to charge daily. The sub-seven hour battery life places it around its high-definition screened LTE phones like the Spectrum and Nitro HD, unsurprising, and is an average benchmark for a mid-range dual-core phone.

Our benchmark tests prove that the Prada phone 3.0 lags behind LG's other recent smartphones — we used the Nitro HD here, with a performance more in line with the Samsung Galaxy S II. The phone scored particularly high in Sun-Spider testing; we re-ran these tests but returned to a score, bordering on 5,000. For standard smartphone tasks, it's a capable device, while also able to handle existing processor-intensive gaming titles like *Shadowgun*. Call quality was generally excellent, although we found that any noise cancellation feature wasn't quite up to the job; our caller found that background noise in a relatively quiet cafe interfered with the call quality. The Prada phone 3.0 packs in radios for GSM/GPRS/EDGE 850, 900, 1800 and 1900, while the HSPA+ 21Mbps radio works on 900, 1900 and 2100 frequencies, meaning US importers will find their carrier choice limited to either AT&T or T-Mobile. In our speed tests, the handset topped out at around 4,000 kbps down, averaging

BENCHMARK	PRADA PHONE 3.0	LG NITRO HD	GALAXY S II (UNLOCKED)
Quadrant[1]	2,876	2,616	**3,200**
Linpack Single / multi[1] **(MFLOPS)**	43 / 54.9	51.1 / **81.8**	**55** / 81
Vellamo[1]	835	**1,156**	763
NenaMark1[1] **(fps)**	57.2	56.1	**59.8**
NenaMark2[1] **(fps)**	32.4	37.2	**49.1**
Neocore[1] **(fps)**	57.2	**59.8**	**59.8**
SunSpider 0.9.1[2] **(ms)**	4,872	**2,687**	3,369

[1]Higher is better
[2]Lower is better

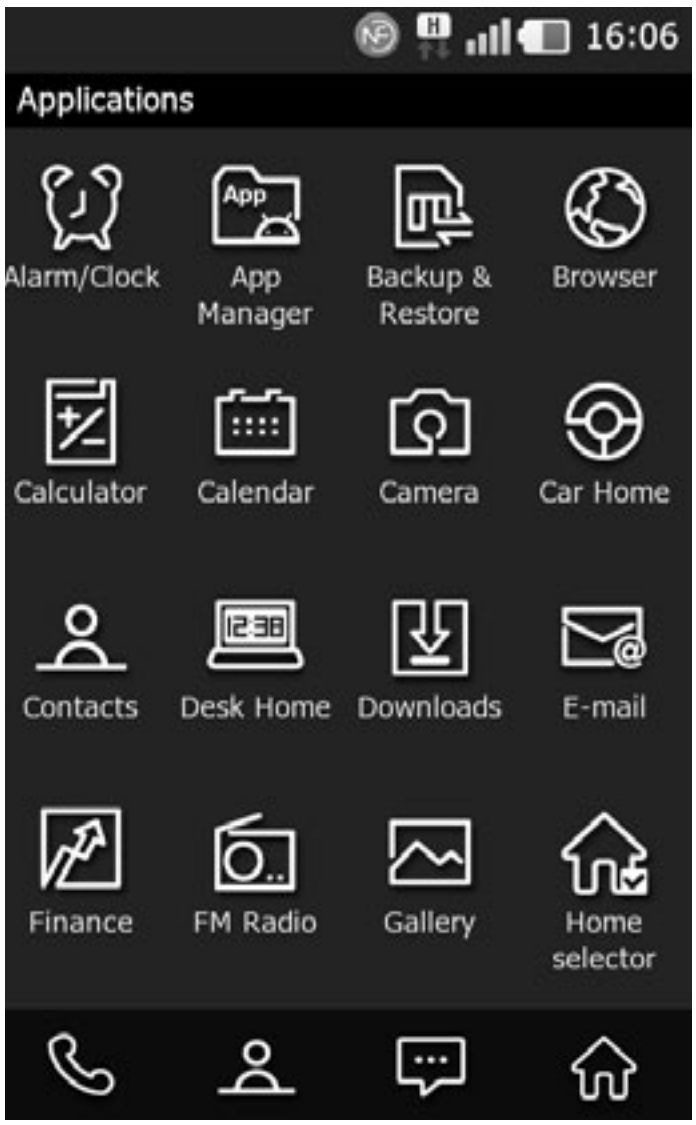
out at around 2,500 kps on both O2 and Three networks in the UK.

Software

Prada and LG didn't stop at the front-facing hardware when it came to this project — they decided to plunge right into the software, crafting their own "interpretation" of Android. Stock Android fans probably felt a chill down their spines after reading that, but we'd like to state that it's not *all* bad. At its core, it's the same Android Gingerbread experience you'll get on a pile of recent smartphones, albeit with most of the color drawn out of it. The Prada Phone 3.0 runs Android 2.3.7, with LG faithfully promising a jump to Ice Cream Sandwich in the future. However, given LG's past form on smartphone upgrades, we're not particularly confident about seeing it that soon. The monochrome skin pervades everything we normally cover in our software reviews, including icons, widgets, menus, the keyboard and the notification bar. It's the line-drawing-inspired icons that will catch your eyes first. LG's built-in apps arrive with their own stylized icons, but the designers made the clever choice to add in a list of extra icons (including the Google-themed standards, like YouTube and App Market), with a whole alphabet to assign to those third-party apps, meaning you can just about stick to the monochrome styling, regardless of your app preferences.

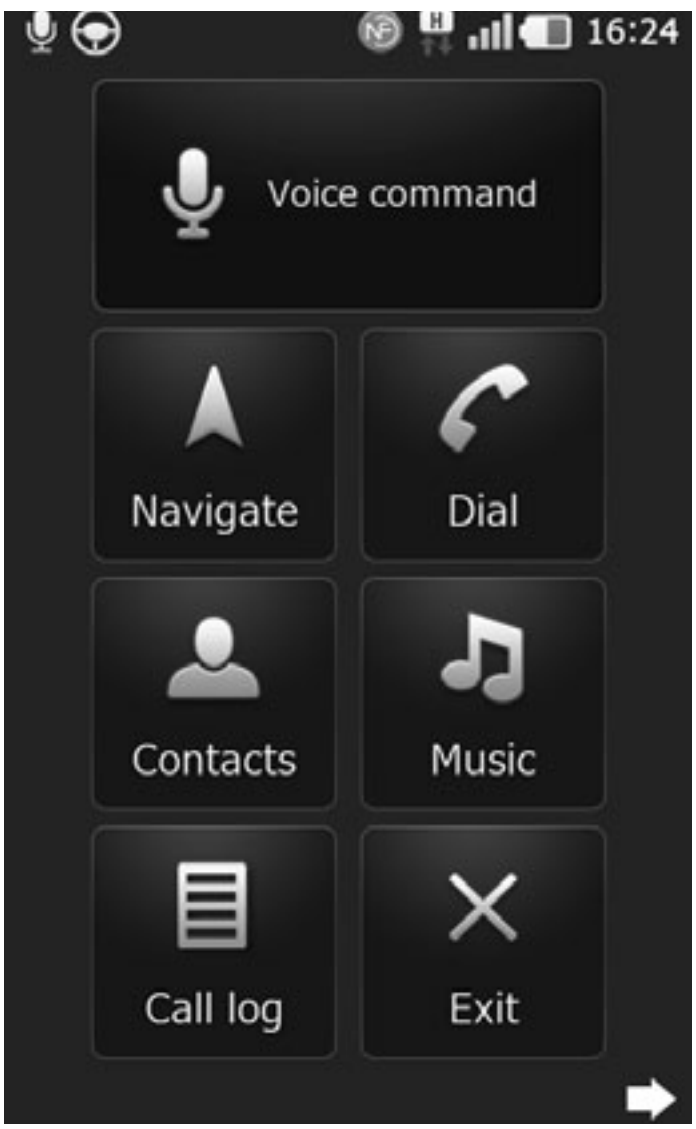
The notification bar is decked in a few shades of grey, with shortcuts to mute, WiFi, Bluetooth, NFC and data traffic. There's a music player resting beneath it that went largely untouched by us. The keyboard is a simple affair; a predictive input option can be toggled on or off. Stock widgets, like email, calendars can also be expanded and contracted; a nod to the Android 4.0 future? Built-in LG apps include wireless media streaming and two display options. Car Home will lock down the standard capaci-

SCREENS


16:06
Applications
Alarm/Clock
App Manager
Backup & Restore
Browser
Calculator
Calendar
Camera
Car Home
Contacts
Desk Home
Downloads
E-mail
Finance
FM Radio
Gallery
Home selector


16:06
1
2
3
4
5
6
Feb
7
Set default canvas


16:05
London
10/02/2012 16:05
WEATHER
2/2
1°
2°
-4°
Feels Like 1°
Last Updated 15:25
Gmail
Market
Gallery
ShadowGun
Browser
YouTube
Camera
Phone
Contacts
Messaging
Applications


16:24
Voice command
Navigate
Dial
Contacts
Music
Call log
Exit

tive buttons, offering a simplified version of your phone for calls and navigation, while Desk Home will furnish that NOVA display with a digital clock readout. There's also an app task manager, LG's curated app store, Polaris Office and a relatively comprehensive image editor that includes a smattering of Instagram-style filters.

The Prada phone 3.0 has a capable web browser too. Although it looks a bit aged in comparison to high-definition screened rivals, the 4.3 inches of screen means scrolling and zooming are both done with ease; multi-touch works well through the phone's complete interface.

Wrap-up

Sure, most of you have probably made your mind up about this phone as soon as you saw Prada in the title, emblazoned on the box and etched on the screen. The good news is that this fashion phone's specifications aren't a joke — unfortunately, it's last year's flagship specs, dressed up in a Prada suit — a bigger 4.3-inch number. The understated, stylized black-and-white skin will be an acquired taste; but it also magnifies that LG Nova display — for better and worse. Those whites will boom out from black backgrounds in daylight on that NOVA display, but it looks washed out in comparison to AMOLED rivals. We're torn on the design, too. It echoes one of our favorite handsets from last year, but doesn't inspire the same wow factor — things have moved on. This is a designer phone, but while it's solid, at the same time it's plain — although Prada would probably prefer the term "classic." It's running a specification sheet we saw around this time last year — are you willing to pay up for that label? Off-contract, it's going to set you back £500 ($787); while it's better looking than the rest of LG's smartphone fare — and far less temperamental — it also costs around $150 more.

Mat is a contributing editor who lives in the UK. He's a Liverpool supporter who enjoys obscure Japanese gameshows.

BOTTOMLINE

LG
Prada Phone by LG 3.0

£500 ($787)

PROS

- Stylish design
- Top-notch camera sensor
- Good in-box headphones

CONS

- A little safe, design-wise
- Pricey for last year's specs
- Not the highest-quality build materials

» The hardware benefits from Prada's design input, and while it's the best-looking LG phone yet, the screen lags behind what its other flagship handsets offer.



REVIEW

Sony PlayStation Vita

The PS Vita is easily the most advanced portable gaming device to date, but will live and die by software support. It's off to a good start, if you can swallow the sticker price.

BY SEAN BUCKLEY

Look familiar? It should: that's the PlayStation Vita, Sony's up-and-coming challenger to the mobile gaming throne. It's made the rounds a few times before, from E3, to Tokyo Game Show, to San Francisco's Vita Hill Social Club, and it even took an early pass through Engadget's review gauntlet — courtesy of the Land of the Rising Sun, of course. After a strong start in its homeland (followed by a quick holiday slump), the budding portable hit the books, brushed up on its English and barreled its way back into Engadget's game room, *demanding* another review. And why not? We're happy to oblige.

And here it is, an extremely familiar looking slab of plastic, glass and electronics that calls itself the North American 3G / WiFi PlayStation Vita. Sony's



new region-free tradition ensures that it won't be too different than Japan's native model, but we're diving in for a more detailed look anyway. Read on for a peek at its content management system, backward compatibility, the particulars of its fancy new thumbsticks, the latest firmware update's contribution to the platform and much more.

Hardware

The PlayStation Vita's face is dominated by its luxuriously large 5-inch OLED display, and with good reason: this touchscreen not only pops with rich colors, crisp textures and deep blacks, but it's also the user's primary method of input outside of games. Yes, this gorgeous display is capacitive, and

is responsive enough to make the 3DS' resistive screen feel decidedly dated. The 960 x 544 panel boasts some fantastically wide viewing angles, to boot. We did encounter a hiccup or two with the touchscreen, though. After sucking the battery dry during Engadget's requisite endurance tests, the rebooted handheld failed to respond to finger input. Things were right as rain after a hard reset, but we braced ourselves anyway — the US release may have to ride the same bumps its Japanese counterpart hit late last year. (Note: shortly after the incident, our Vita was updated to system firmware 1.60, and as of this writing, the issue hasn't returned.) Flanking either side of the screen are the unit's primary physical controls, with a classic D-pad on the left, and the traditional PlayStation triangle, circle, square and X buttons on the right. Each side also has its very own miniature thumbstick, situated above the port side's PlayStation "home" button and the starboard's start and select buttons.

PSP veterans will find the Vita's face buttons and directional pad a bit smaller than those of their old mashing grounds, though they don't feel *too* petite. The tiny set of user-facing toggles favor the "clicky" depression style Nintendo integrated into the 3DS, rather than the poppy, soft-bottomed buttons found in Sony's *last-generation* handheld, as well as the DualShock 3, Xbox 360 controller and classic gaming consoles of yore. Although we personally favor the slight mushiness of the classic controllers we were brought up with, the Vita's buttons respond to a comfortably light touch, and are plenty responsive. The D-pad is different as well, joining the four islands of Sony's traditional directional offering to form a single unified joypad. It's smaller, and a little different than the PlayStation norm, but it's also less stiff than the PSP's old D-pad, and rolls easily under the thumb.

Both the face buttons and directional pad are conveniently located just north and to the outside of the handheld's dual-analog thumbsticks — that's right, there are two of them. Rather than simply adding one later or mimicking the original PSP's layout, the Vita simply includes both analog sticks up front, giving the handheld controls reminiscent of its big brother, the PS3. The sticks have been shrunken significantly, however, and don't have quite as much play as the joysticks that inspire them. Compared to a DualShock 3, these petite sticks don't tilt as far from their center, but because they still offer an appropriate level of resistance to their size, it's still possible to execute delicate maneuvers. The twin sticks have a smaller turning radius than the 3DS' solitary circle pad, but their height lends them a feeling of leverage that Nintendo's handheld simply can't emulate. Unfortunately, that height also makes them stick out of the handheld's surface somewhat oddly, which returns us to an issue haunting the original PSP: portability.

Measuring 182.0 x 18.6 x 83.5mm (7.1 x .73 x 3.3 inches), the Vita's pushing

the edge of pocket-friendly gaming. We haven't had so much trouble getting a portable gaming system into our pants since the Sega Game Gear, though the Vita is of course smaller. A pair of large, "only around the house" cargo pants held the Vita just fine, but any pair of trousers worthy of wearing in public will hug the handheld with an awkward and uncomfortable firmness. This is a portable console, not a pocketable one, and prospective owners should plan on keeping it in their backpacks, suit jacket pockets or at home, on the nightstand. The 3G / WiFi version of the handheld logs a respectable 9.8 ounces (279g), but it *seems* lighter. The same wide, long body that makes the Vita look heavy at first glance *also* distributes its weight evenly, creating the illusion of a featherlight handheld. Yes, it's a hair heavier than the PSP 3000 and Nintendo's latest, but not by enough that you're likely notice the difference.

The Vita's perimeter is laden with ports, slots and even *more* buttons. The handheld's topmost edge is home to power buttons and volume controls, an unmarked accessory port and the PS Vita game card slot. Rounding out the top edges are the console's left and right shoulder buttons, which complete the handheld's oval curvature and mold to the insides of your index fingers. On the 3G model, a SIM card slot adorns the Vita's left side, made flush by a small, attached door. The handheld's south edge houses its proprietary goods: a combination data / charging port, and



a slot for Sony's new (and unofficially required) PlayStation Vita memory card. The card looks remarkably similar to a microSD card, although it's a bit wider, a bit thicker and *significantly* more expensive — a 32GB microSD card will set you back about $30, versus the $100 you'll spend on Sony's equivalent storage media. Thankfully, the Vita's south side isn't a completely Sony exclusive zone — the headphone jack supports the 3.5mm standard.

The console's backside is painted with hundreds of Sony-styled triangles, circles, squares and crosses, highlighting the console's rear touchpad in between a pair of matte black grips. This new piece of hardware hopes to give players a smartphone-like interaction without crowding the screen with fingers — an admirable goal, considering how well the Vita's glossy exterior collects fingerprints. In our time with the handheld, we didn't stray too far from our microfiber cloth; the console's smooth surface is a magnet for oil, dust and assorted fibers just begging to be wiped away.



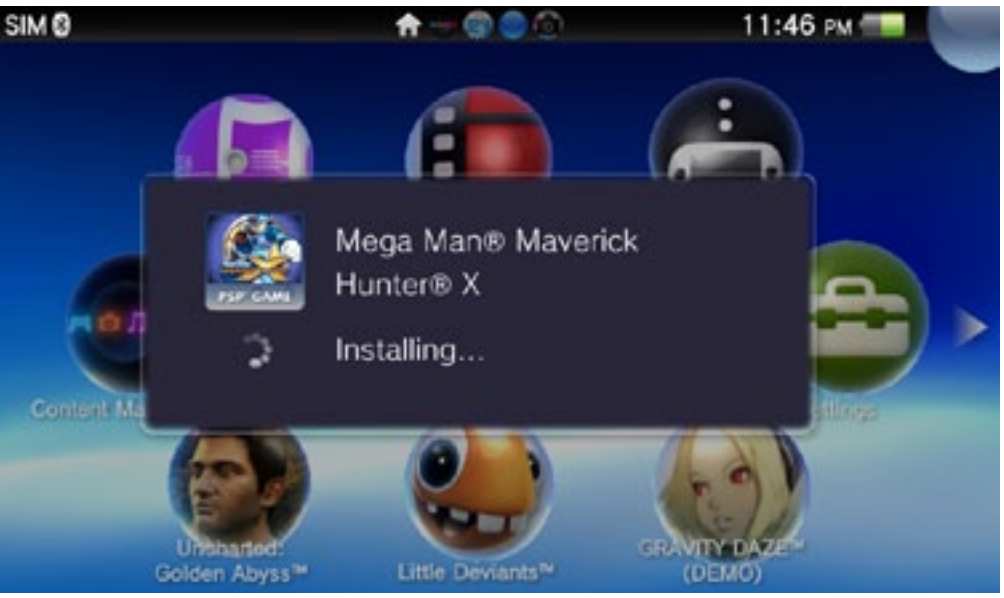
The edges collect minor scratches quite easily, and proved vulnerable to scuffs even when we casually placed it on a wooden table. We'd definitely recommend a case for the exacting perfectionists out there. Meanwhile, the handheld's back is headlined by the VGA rear-facing camera, but we'll get to that (and its front-facing companion) later. Now that we've got a good feel for the machine, let's see what it can do.

Software

The Vita's smartphone-esque user interface hasn't changed one bit since we first smudged it at San Francisco's Vita Hill Social Club. Its staggered icons are still accounted for, as are the intuitive touch controls. And touch is indeed the name of the game; the menu won't accept any input, save that of your capacitive-friendly digits. Blowing off the buttons is a bit of a bold move, but when the touch controls work *this* well, we really don't mind. Navigation is simple and intuitive — flicking north or south brings you through as many as ten pages of staggered icons, each representing an app, game or feature. Tapping an icon opens up a starboard path, allowing up to five open apps to trail to the home screen's right. Scrolling horizontally allows you to manage these applications through their "LiveArea" screens. Here you'll find a centered launch button, as well as various shortcuts peppering the screen — these might take you to the camera's photo album, for instance, or perhaps to a featured movie available for rent in the PlayStation store. A diagonal swipe closes a LiveArea tile with an animated flourish, "peeling" the program off of the Vita's screen and effectively terminating the program.

Blowing off the buttons is a bit of a bold move, but when the touch controls work this well, we really don't mind.

Open applications headline the status bar at the top of the screen, and can be viewed in a cascading file view with a quick click of the PlayStation button. Holding the button down produces a quick menu, allowing the user









to adjust the screen's brightness, manage music playback and fiddle with the chat and microphone settings. A long press on any of the Vita's home screens will allow you to rearrange the icons, delete programs and customize any specific page's background with a new color scheme or an image from your photo gallery.

The Vita comes equipped with a small suite of apps, and most of them are pretty straightforward. Through Photos you can manage your images and control the Vita's cameras (more on that later), while the Music and Videos apps allow you to organize and — you guessed it — play your music and videos. These three media applications all share the same general layout: categories, artists or items flow in a vertical list. We've seen prettier media apps, but these get the job done just fine.

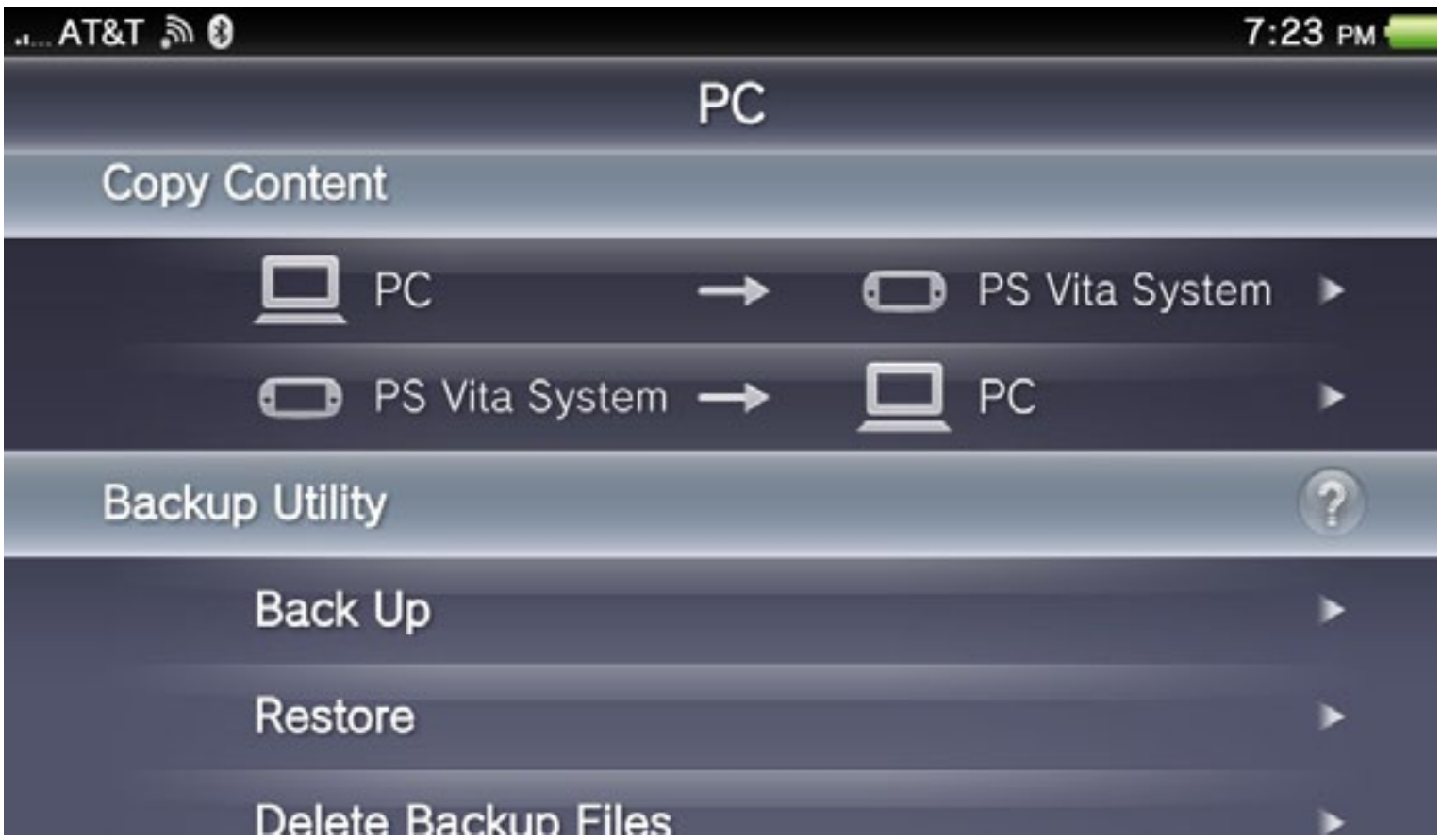
There are also a few applications pertaining to the PlayStation Network that do the obvious. Group Messaging, Friends and Trophies all do exactly what you think — that is, send PSN messages, organize your buddies and manage your Trophy data, respectively. The other shortcuts peppering the home screens are a bit more unique. Party, for instance, brings cross-game voice chat to the Vita, allowing friends to catch up using the Vita's internal

microphone and send each other chat messages and game invitations (you can thank the Vita's extra RAM for that). Parties also monitor a user's status, letting your pals know if you've started a game or left the room.

The Near app also hopes to strengthen social ties between Vita owners, although the execution is less intuitive than we'd hoped. Diving into the Vita's online manual tells us that Near finds players in your area and exchanges play history data, in-game items and, if you allow it, usernames with local gamers. In practice, however, this is a bit more confusing; the app's "out and about" menu does indeed find a smattering of local Vita owners, shown on a friendly looking radar-screen. From here we were able to view expanded information on a recently played game, including a "buzz rating," the number of people playing and a map of emoticons detailing how players felt about the game. The application is interesting, to be sure, but far from straightforward; even after thumbing through the Near portion of the Vita's manual, we found ourselves stumbling through the program, unsure what, exactly, to do with it. It seems like a more robust (or maybe just complicated) version of Street Pass on the 3DS, but in the end we just found it to be the Vita's most muddled feature. We're hoping it'll make more sense as our local userbase fills out.

Sadly, the Vita's web browser hasn't improved one iota since we reviewed the Japanese model. It remains shockingly slow, struggling to render most websites at a respectable clip. It's not that it doesn't load pages fast — it does — it just doesn't tolerate much navigation. Even after fully loading a page, scrolling and zooming in feels painful, if not stunted, and that's true even if you're returning to an area of the screen that had previously been drawn. Some pages fared better than others, however. Google, for instance, didn't suffer any of the above maladies, nor did the mobile versions of Engadget, Facebook or any other watered-down site, really. In a pinch, the Vita's web browser is serviceable, but any modern smartphone simply crushes it in terms of usability — which is surprising, considering how smoothly the rest of the Vita's applications run. Hopefully future updates will make up for the PSV's clunky introduction to the World Wide Web.

Our review unit didn't have Google Maps in tow when we first unboxed it, but firmware update 1.60 handily tacked it on. The Vita's map app is relatively simple, tapping Google's servers for traffic data, directions and satellite imagery. Zooming in and out or panning to a new section of the map usually causes the app to stutter, though it recovers faster than the web browser. It won't replace your GPS, or even your PC's Google Maps bookmark, but it's a nice feature to have if you're lugging around a 3G-enabled games console.



Content Management and Backwards Compatibility

The Vita's proprietary memory card won't play nice with your laptop's multi-card reader, so you'll be loading media and backing up games with the help of Sony's Content Manager Assistant, a piece of desktop software designed to help you, well, manage content. This is no iTunes, however: the PC / Mac GUI does little more than tell the Vita what folders it has permission to play with (the Vita itself browses the file system, selects content and initiates the data transfer). Cutting out the necessity of learning a separate desktop interface for data management keeps things easy, and creates a uniform experience that doesn't change regardless of platform. In other words, backing up files and transferring data works exactly the same way with a PC / Vita pairing as it does with a PS3 / Vita setup. It keeps thing simple, with just two menus: copy content or backup utility. The copy content section lets you pick and choose the files you copy from your handheld to your host device or visa versa, and the backup utility lets you backup your Vita, restore it from a backup, or delete your previously saved backup files altogether.

While the device-controlled environment is easy to use and refreshingly uniform, it has some drawbacks, mainly stemming from the very *strengths* we just mentioned. Ease of use comes with a consequence. By making the PC syncing experience identical to the one you'll enjoy on the PS3, Sony abandoned the opportunity to build a more robust file management system on the desktop end. The Vita will only browse files located in a handful of pre-specified folders — if the Content Manager Assistant isn't assigned to the folder that contains the particular picture or video you want to

transfer, your Vita isn't going to find it.

Even then the Vita is only looking at certain types of files. It favors MP3, MP4 and WAVE audio files, likes its films in MPEG-4: SP (Level 3) and H.264 and plays nice with most major image formats, including JPEG, TIFF, GIF, BMP and PNG. Knowing exactly what kind of game data will transfer, on the other hand, is a little less straightforward. Yes, the Vita has a degree of backward compatibility with its father handheld, but its love of last-generation games isn't universal. Be it licensing issues or a fault of the Vita's PSP emulation, a chunk of the PlayStation Store's PSP library, such as *LittleBigPlanet* and *Killzone: Liberation*, simply won't run on the next-generation portable. These games won't appear in the PlayStation store when you're browsing from the device itself, but you can still download them through the PS3. And in case you were wondering, no, the Content Manger isn't a loophole to compatibility. Purchase with care, or live with the consequences.

When the stars (or licensing agreements, or emulation compatibility or whatever) are aligned, PSP gameplay on the Vita's gorgeous OLED display is a sight to behold. The colors are brighter and more vibrant, and have shed the washed-out look that the PSP's LCD screen sometimes produced. It's bigger, too, making full use of the Vita's 5-inch display — although this can make the stretched classics look a bit more jaggy than they might have on Sony's last-gen hardware. We could live with this caveat, and probably *would* without much question if we didn't read the Vita's online manual. As it turns out, momentarily holding the touchscreen while playing a PSP game brings up a settings menu, offering players a handful of tweaks.

Not a fan of jaggies? Bi-linear filtering should smooth out those rough edges. Nostalgic for your PSP's LCD? Switch on the Vita's color space mode to give the handheld's bright screen the appropriate muting. The menu even has camera options for scant few PSP games that pulled the augmented reality trick. If all this wasn't enough, the Vita's secondary thumbstick can be given the power to emulate the D-pad, face buttons or left analog stick. Bilinear filtering won't make every game look better — in fact, as far as we can tell it didn't make any difference at all when applied to *Mega Man Maverick Hunter X* — but it adds a caring touch to a passable PSP emulator.

Games

Despite its modest collection of multimedia apps, the PlayStation Vita is, first and foremost, a PlayStation. A portable games console, out to claim its place as king among handheld gaming beasts. It would stand to reason, then, that the PlayStation Vita has games. It does. Perhaps in response to the mistakes its competitors made, the Vita is hurtling towards launch day with a strong library of diverse titles.

Even Engadget's resident Nintendo fanboys had to give Sony's new portable props: these are by far the finest handheld console graphics we've ever seen. Still, it's not perfect — close ups of Nathan Drake's shirt in *Uncharted: Golden Abyss* betrayed the games lowres textures, and a careful eye can see that some edges just aren't as smooth as they would be on a home console. We didn't expect anything else, of course. You aren't going to give up your PS3 for the sake of the Vita's graphical chops, but they're still darn impressive.





PlayStation Store

Although gamers around the world breathed a collective sigh of relief when Sony backed away from the PSP Go's digital exclusivity, Sony is still gunning for a future of games untethered by physical media. Getting there will mean making digital purchases more convenient *and* more appealing than the alternative. The Vita's PlayStation store isn't the solution, but it's a start. The handheld shop's main page is headlined with a rotating banner of featured content and four categories: featured, new releases, top downloads and all. Sony told us that more options are on the way, noting that game demos will start showing up after February 14th and that Netflix is due to arrive on the 21st. The default view, "All," offers the choice of PS Vita games, PSP games, minis and media as well as the chance to search by genre.



Jumping in is a fairly smooth, if somewhat basic, experience — we easily hopped into the Vita category to see a short, alphabetized list of titles available for download. The PSP and Minis sections didn't stray too far from the formula, though here, the larger lists are further split into various catego-

ries, arranged in alphabetical order. The Vita's online shop suffers the same faults as its PS3 counterpart: it's well organized, but no fun to use. While alphabetized games and clearly marked categories may make it easy to find the specific game you're looking for, it doesn't make us want to just "look for games." The over-organized structure makes it difficult to browse, and the scarcity of gameplay screenshots put casual shopping out of the question. The aforementioned "Near" app seems to lean heavily on discovering new games that are being played in your local area, but users (this reviewer included) who find the location based social sharing application confusing won't find refuge here. The Vita's incarnation of the PlayStation store is no more engaging or creative than its big brother's online shop, but at the very least it's easier to navigate than its PS3 compadre, and for now, simpler as well.





Camera

Much like the Vita's web browser, not much has changed about the handheld's camera since its Japanese launch. Its rear-facing camera still whimpers with a maximum resolution of 640 x 480, often producing noisy images that skimp on detail. Swapping to the front-facing camera will frame the player's mug at the very same resolution, though its lens' off-center positing ensures they won't be looking at the birdie. These shooters work well enough for games like *Little Deviants* to use for augmented reality mini-games, but the Vita won't make you consider leaving your point-and-shoot camera (or even your cell phone camera) at home.

Still, firmware update 1.60 gave the camera a small kick in the pants, tacking video recording to the end of the list of things that the handheld's camera is "sort of okay" at. Videos adopt the camera's native resolution, keeping the same noisy grain and washed out colors that plague stills. It isn't any worse off than the 3DS' offering, but the Vita's camera simply doesn't measure up to the standard the rest of its hardware sets.

A turn of the century camera phone, on the other hand, might be able to give it a run for its money.

Three to five hours of gameplay — it's what Sony promised, and it's what we got.

Battery Life

We already know better than to expect the Vita to pack enough juice to get us through an international (or even domestic) flight, but we couldn't resist running it through a handful of battery tests anyway. Our first few power drains matched our review of the Japanese unit almost exactly — three hours of dedicated gaming on the console's default settings left our handheld dead. Dragging the Vita's brightness slider down to its dimmest setting scored us another hour of playtime, and kicking the console into flight mode seemed to buy it another twenty minutes. We were able to game for a little longer in PSP mode, stretching the battery to nearly six hours of gameplay on the minimum brightness level with WiFi and audio disabled. We were hoping to drag the handheld's longevity out a bit further than this, but were unable to get the Vita off of the company line — our game-heavy battery tests match the Vita's official battery life estimates almost blow-for-blow. Three to five hours of gameplay — it's what Sony promised, and it's what we got.

Sony seems to have made looser estimates for media playback, however. Although audio playback fell just a few minutes shy of the rated nine hours, our video test eclipsed the expected five-hour runtime by a full hour. Although the Vita's six hours of video playback isn't enough to make up for its other electrical shortcomings, we have to respect a device that can handle *Gone with the Wind*, complete with overture and intermissions, and still have enough juice left over for some light gaming. That's an inflight experience we could get behind. Despite our love of Rhett Butler, though, we still feel a bit let down by the Vita's longevity. At the very least, Sony's aware of this shortcoming, and has already announced an external battery pack.

3G Connectivity and Remote Play

When we reviewed the Japanese PlayStation Vita 3G / WiFi, we were at a slight disadvantage, being several thousand miles outside of the handheld's chosen cellular network. The stubborn console simply wouldn't accept a foreign substitute. In the US, of course, it tapped into AT&T's 3G network without any fuss. Unfortunately, rumors of its limitations haven't been exaggerated. The cellular connection will get the Vita logged into the PlayStation network, browsing the web and even using



Twitter on the go, but a 20-megabyte download restriction keeps the PlayStation store from using the connectivity to its fullest potential. Gamers on the go jonesing for something new to play will either have to settle for a PlayStation mini with a small data footprint, or return to the warm embrace of WiFi. Users can still "Party" over 3G, albeit without cross-game voice chat, as well as view their friends list, update their trophy data and check in with Near. Games will still let players check their leaderboard ranking over 3G, but won't let them climb any higher — mobile multiplayer will have to wait for Sony to build an LTE PSV.

Sony's Remote Play magic won't work over 3G either, though we were able to pipe a PSone game through our local network just fine. The Vita currently supports the same list of Remote Play capable titles as the PSP, which mostly consists of simple PSN games, the home console's music, photo and video menus, and the aforementioned PSone games. We tried to recreate Sony's TGS *Killzone 3* demo, but the Vita wouldn't have it. Right now, it's up to developers to activate Remote Play, and unless Sony decides to tweak the PS3's firmware to say otherwise, that's the way it's going to stay. In the meantime, *Bionic Commando Rearmed* and *Gran Turismo* numero uno will have to do.

Wrap-Up

Sony's latest contender is a little late to the game, nearly a year following the 3DS' debut. Still, the Vita is *technically*

a stronger player. Sony's new portable eclipses Nintendo's latest on more battlefields than ever before, outclassing it not only in graphical output, but in touchscreen technology, controls and button layout, user interface design and, perhaps most importantly, game selection at launch. So is that enough for it to pull ahead of the competition? We can't be sure.

We will say, however, that the PlayStation Vita triumphs where it counts. It has its hiccups and blemishes, sure, but web browsers can be updated, as can the PS3's remote play limitations. Still, no amount of software updates can undo that disappointing runtime. Without performance-enhancing peripherals, the PlayStation Vita won't be getting you through long flights or cross-country road trips. For gamers spoiled by the endurance of the original PSP and DS systems, it's a tough sell. In fact, the WiFi edition's $250 price tag might give gamers burned by the 3DS' price-drop pause, to say nothing of the $50 premium they'll pay for the 3G model.

Still, it's hard to shake the Vita's siren call: adopt early, it says, I'm worth it. As seductive as that call from the souped-up PSP successor is, its real song is its games — if none of them resonate for you, you'd better stay bound to your mast through these *Uncharted* waters.

Edgar Alvarez contributed to this review.

Sean a lifelong gamer, a comic-book nerd, and an Eagle Boy Scout. He also writes for Engadget. What else is there to know?

BOTTOMLINE

Sony PlayStation Vita

$250 - $300

PROS

- Superb 5-inch OLED touchscreen
- Intuitive, snappy UI
- Comfortable button layout and dualstick controls

CONS

- Unimpressive camera
- Short battery life
- Dust and fingerprint magnet

» The PS Vita is easily the most advanced portable gaming device to date, but will live and die by software support. It's off to a good start, if you can swallow the sticker price.



REVIEW

Motorola Droid 4

As the latest addition to Verizon's red-eyed family, the Droid 4 improves upon its predecessors' keyboards, offering physical QWERTY fans one of the most refined experiences on the market.

BY JOSEPH VOLPE

Oh, how the mighty have fallen. For a phone that single-handedly resuscitated the business prospects of its parent company, gave a much-needed boost to Google's fledgling Android and finally added a compelling product to Verizon's lineup, the Droid can't get no respect. Initially billed as the anti-iPhone, the OG flagship embodied an aggressively tech-for-tech's-sake design ethos, with its masculine, hard-edged build, geeky OS and Lucasfilm licensed moniker.

That was all once upon a time. Now, two years later and sucked of its dis-



ruptive significance, the only legacy remaining for the red-eyed Droid franchise is its brand equity and QWERTY slider appeal. Aside from BlackBerry addicts, most consumers appear none too chuffed to see those slide-out keypads become the stuff of mobile lore, and instead prefer those increasingly ubiquitous slabs (namely, of the 4.3-inch-and-up persuasion). So, where did it all go wrong? Why is the Droid 4, now imbued with LTE, getting the B-list treatment? Does a $200 price tag and a host of minor spec bumps (a 1.2GHz dual-core CPU, 1.3 megapixel front-facer and beefier 1,785mAh battery) merit another spin around the two-year contract pole? Read on to see whether this former trailblazer can still do what its namesake robot supposedly does.

Hardware

Remember the lip? Long live the lip because it's sadly been erased. That signature design quirk, which stuck out as evidence of the keypad tucked below, has been replaced by an uninterrupted face, and those odd corners Moto ushered in with the Droid RAZR. Love it or hate it, that fresh (albeit jarring) build is sweeping the manufacturer's device portfolio, so it's best you make peace with it now. And so, with the launch of the Droid 4, it's clear the company's making a clean break from the traditions of the past. This device lacks any of the cutting-edge specs and "thin is in" appeal used to lure consumers in droves. Seemingly constructed with the enterprise user in mind, the phone manages to be both shockingly large and surprisingly comfortable to hold. Need a bit of convincing? At 127 x 67.3 x 12.7mm (5.0 x 2.65 x 0.5 inches), the unit's about 1 - 2mm thicker than its predecessor, in addition to being taller and wider. It's also managed to pack on some additional heft, weighing nearly 0.5 ounces heavier as compared to the Droid 3.

So, about that full body lift. Gone are the rubberized backing and polished metal frame that made the Droid 3 so familiar to users. In their place, a texturized, all-plastic encasement. Moto's PR team claims the "Droid 4 is pretty," but we beg to differ. While we won't outright denounce its construction as appalling, it is easily dismissed; a case of form fitting function. It's not necessarily a minus, as this device feels reassuringly solid and weighty in hand, mitigating any concerns that it might accidentally

slip from your grasp. Also conspicuously absent in this refresh is that hitherto mandatory "with Google" branding, though unfortunately Verizon's logos (4G LTE, as well) are still present. We're not exactly the betting type, but we'd wager that omission of Mountain View inside has a little something to do with a certain pending merger. As for what lies beneath, well, we regret to inform you that access to those internals requires a "key." Yes, rather than simply allow users to slide off the phone's backplate, a special (and easily lost) plastic piece is needed that, when combined with physical force, reveals a non-removable 1,785mAh battery, microSIM and an empty microSD slot. We should point out that with considerable manual effort, you will have success in prying it free, sans included tool.

Considering this dual-core handset's being quietly targeted at the business set, the phone cuts a rather staid figure, with its grooved posterior broken up only by an 8-megapixel / 1080p camera up top, and a sliver of a speaker on the lower left. Moving around to the front face, the 1.3-megapixel camera is positioned to the right of the smallish ear piece, itself sitting just above Motorola's logo. Fans of unblemished frames won't find a neat collection of ports and buttons here. On the Droid 4, it seems, if there's empty space, it must be occupied. And so, each side plays host to a specific function, with the mic below the screen, micro-USB and HDMI sockets on the left and a volume rocker on the upper right, in addition to the 3.5mm headphone jack and flimsy power button on its head. There's no dedicated camera key to be found, but that's probably for the best, given the power button's tendency to get stuck in its slot.

Usually when companies lock certain specs in place, it's a testament to not fixing what isn't broken. On the other hand, when that hardware detail happens to be a 4-inch, 960 x 540 PenTile LCD display, we're tempted to call it laziness. If you're possessed of a keen eye and meticulous attention to detail, then the poor contrast and low pixel density offered by the Droid 4's screen should prove to be a major turn-off. Out in broad daylight, even with brightness set to the maximum, we found ourselves continually shielding the phone to render its contents readable. This became particularly bothersome where phototaking was concerned, as we were never quite able to tell what was being framed by the camera's viewfinder. Tilt slightly away from the phone and immediately you'll notice an apparent wash out, although viewing angles didn't take as drastic a hit.

Keyboard

Of course, the shining and defining star of the Droid 4 is its QWERTY slider. It's here that we truly see an investment in improved user experience on Motorola's end. The slide-out pad is, quite simply, one of the best available on the market. Fans of the OG Droid's terribly flat and difficult-to-master setup have been



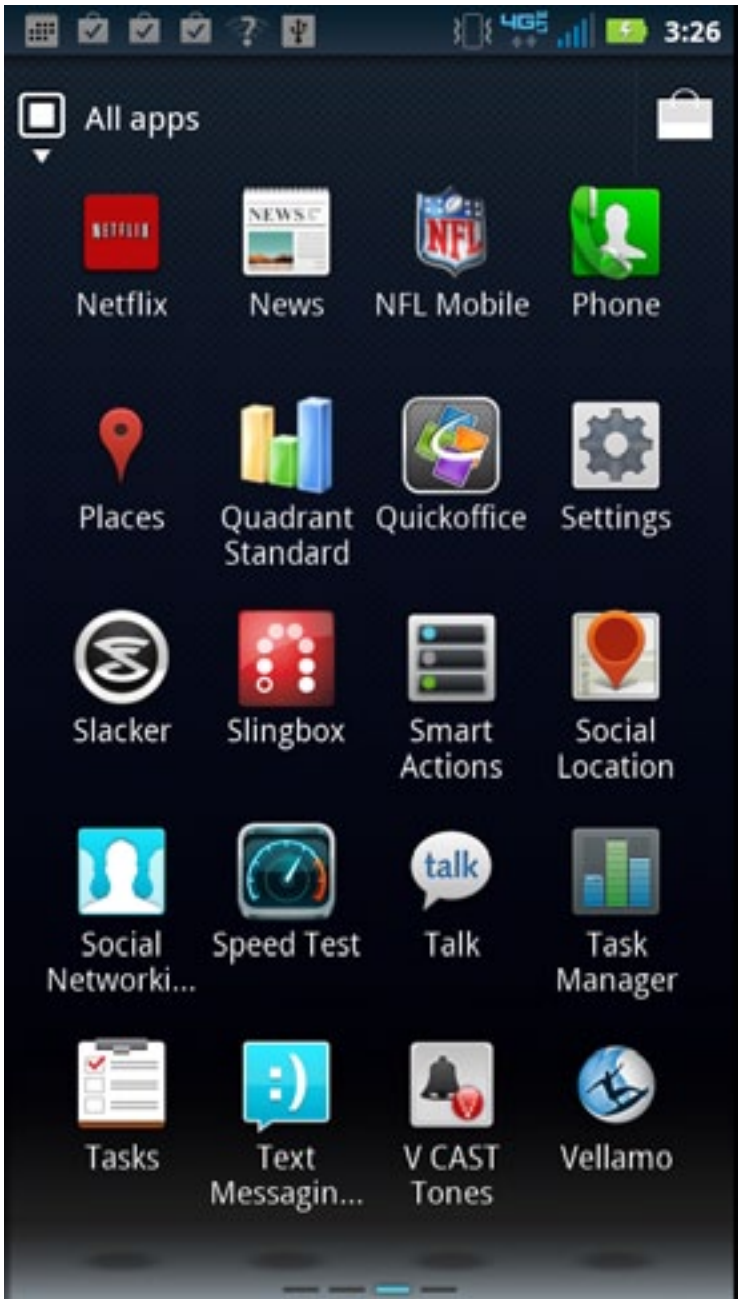


treated to marginally better layouts with each successive iteration. But this newest entry takes the formula employed by last year's model and makes it much more intuitive. The same raised, slightly curved, well-spaced plastic buttons permeate the keyboard across five rows, with the uppermost reserved solely for numbers. While directional keys are present, shortcuts for Android navigation are absent. But we're guessing most users will naturally reach above to manipulate the capacitive buttons, anyway. A soft backlight, triggered by an ambient sensor, surrounds the base of each individual key, which should make texting or emailing in the dark a non-issue for power users.

Functioning much the way it always has, the slider mechanism is, as before, stiff and missing that comforting *snap* to lock. That said, it does give off the impression of durability, so we'll err on the side of Moto's design choice here. Once opened, the phone instantly resorts to landscape mode and a mere button press triggers Google's search app, listing whatever contacts or apps that match your entered text. Swype does come pre-installed, so if you happen to tire of physical buttons, you can always opt for that alternative touch option. Given the intrinsic QWERTY nature of the Droid line, however, we don't anticipate you'll make much use of that software.

Software

To call it MotoBlur would be a slap in the face to this less offensive Android UX. Though it's far from the stock Ice Cream Sandwich pastures we're confident the company will adopt post-Google merger (and hopefully port to this handset), it's still a software overlay, however benign. Moto's own PR team makes nary a mention of what was previously referred to as its Application Platform — a fancier term for skin — which does its best here to be as inobtrusive as possible, delivering a consistent experience that should be recognizable to





fans of the company's latest phones. As you may have guessed, this 2012 device runs Gingerbread (version 2.3.6, to be exact), so if you're holding your breath for that planned ICS update, prepare to turn blue by summer's start.

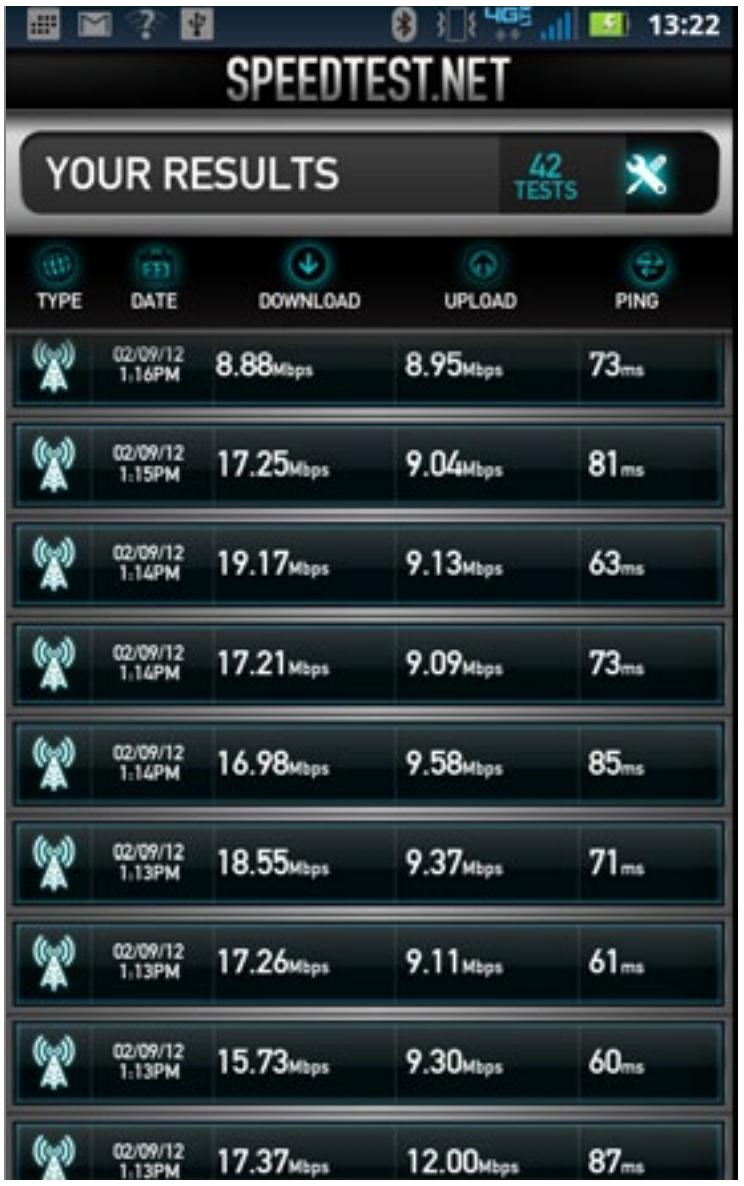
You're still given access to the same five homescreens, but, sadly, there's no ability to reduce or add to that real estate as needed, although you can customize the dock. Even the app drawer's remained unchanged, displaying the entirety of the phone's app collection or sorting it by user preference. As you might expect, the Droid 4 ships with pre-installed bloat a plenty — Verizon's contributions alone amount to 13 — with the spread of third-party software ranging from the useful (Twitter, Netflix, Amazon Kindle) to unnecessary (Let's Golf 2, Slacker, Slingbox). Not one to be left out, Motorola's also crammed its own dedicated applications onto the device's 8GB of storage, the most helpful of which is Smart Actions, an intelligent system that learns users' habits and adjusts settings to optimize battery life. Enterprise customers will be happy to note that the Droid 4 comes loaded with Citrix Receiver for Android, a feature accessible only in webtop mode via an optional 10 or 14-inch lapdock.

BENCHMARK	DROID 4	DROID RAZR	GALAXY S II (UNLOCKED)
Quadrant[1]	2,755	2,798	**3,200**
Linpack[1] **(single-thread)**	52	50	**55**
Linpack[1] **(multi-thread)**	81.8	**95.6**	81
NenaMark1[1]	53.3	50.3	**59.8**
NenaMark2[1]	27.9	27.5	**49.1**
Neocore[1]	58.2	**59.9**	59.8
SunSpider 0.9.1[2]	2,158	**2,140**	3,369

[1]Higher is better
[2]Lower is better

Perfomance and Battery Life

Aided by its dual-core 1.2GHz processor and generous 1GB of RAM, the Droid 4 zips along without faltering. While transitions between screens, as well as in and out of apps can take a tick too long to complete for our liking, we're sure that has more to do with the UX's own animations than any real performance hiccup. Indeed, the 4-inch screen is incredibly responsive, evincing a careful balance of touch recognition that's neither overly sensitive nor stubborn. Call us creatures of habit, but we noticed our own tendency to unconsciously rely on the phone's superb touch controls, rather than its fine-tuned keypad. Could that be a sign of these mobile times? Well, yes and no. Not all smartphone screens are made equal and the Droid 4 just happens to benefit from this particular performance tweak.



When it comes to benchmark testing, our dear Droid 4 wasn't able to overtake its flashier RAZR-thin cousin, but did eke out a few victories nonetheless. Leaving the higher-clocked Galaxy S II's near-pervasive dominance out of this, Moto's bulky slider scored a tie, toppling



its svelte stablemate in Linpack single-thread with a score of 52 and NenaMark 1 and 2 topping out at 53.3 fps and 27.9 fps. Results for Quadrant and SunSpider make it appear as if the Droid 4 is marginally less able, but the RAZR wins by an awfully miniscule margin.

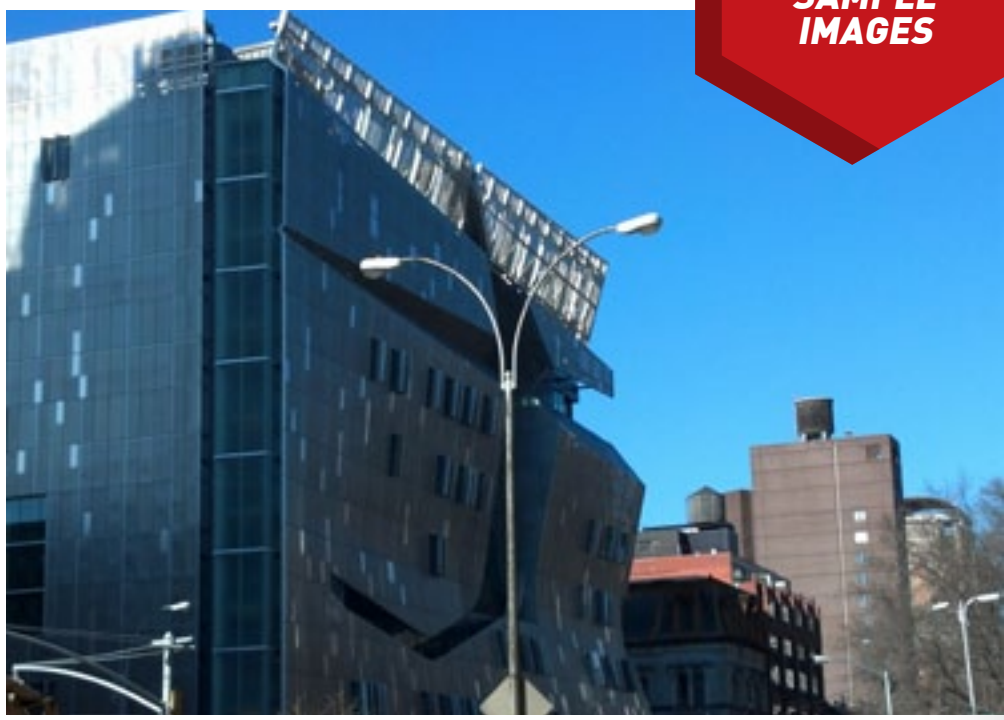
As much as we would've liked to see the Droid RAZR Maxx's profile-fattening 3,300mAh battery built-in to the Droid 4, we're perfectly at ease with the 1,785mAh provided. Notorious though LTE may be for chipping away at charges, the allotted amount of non-removable juice should serve to get you through a day, at most, with moderate to light usage. Call upon the powers of Big Red's 4G network too consistently and you're sure to see that longevity take a severe dip. For a more concrete indication of this phone's battery performance, we played a single video in a continuous loop with brightness set to 50 percent, Twitter syncing at 15 minute intervals and one push email account active. Much to our delight, the Droid 4 lasted seven hours and 15 minutes, a considerable leap over the Droid RAZR's

unworkable five-hour threshold.

Verizon's LTE network is no longer the sparsely-visited spectrum it was back in the days of the Thunderbolt and, as such, is subject to heavier traffic demands in New York City. So, it's understandable that previously accessible speeds hovering around the high 20s and 30s aren't as prevalent. Still, Big Red's 4G is reasonably fast, reaching max speeds of 21Mbps up and 12Mbps and averaging 12Mbps to 19Mbps down and 8Mbps to 9Mbps down in our time testing the handset.

Camera

Of the Droid 4's dual cameras, only its front-facer has received a spec bump from VGA to a 720p-capable 1.3 megapixels. Where its rear shooter is concerned, that module retains its 8-megapixel ancestry, offering up a bevy of scene modes (portrait, landscape, etc.) and shooting options (panorama, multi and timer), in addition to effects filters. The camera performs admirably well when faced with optimal lighting conditions (read: bright sunlight), snapping photos with exceptional detail, depth of field and contrast. Attempt to take similar shots under fluorescent lights indoors or even in dim environments and a noticeable loss of quality will be evident in still shots. Users can hone in on an intended object simply by tapping on screen; however, we noticed the sensor would occasionally continue to readjust without ceasing. This became increasingly problematic when attempting to take macro shots, with the focus consistently skewing to the noise in the background.





Video captured in full 1080p HD was above average, though nowhere near as pristine as you'd hope, appearing slightly grainy in playback with a noticeable jitter and lacking the ability to continually autofocus on the moving scenery. Considering we were standing in the midst of a busy downtown New York City intersection, recorded audio came across crisply and clearly, with

the overall image reflecting the same vibrancy of color and depth.

Wrap-Up

Tailored less for trend-seeking consumers and more for power users (or prosumers), Moto's QWERTY flagship hits a handful of high marks, offering up one of the best physical keyboards on the market, access to Verizon's 4G LTE speeds, a responsive touchscreen and suitable battery life to accompany the demands of on-the-go productivity — all for $200 on a two-year contract. Clearly, this is not the OG Droid of old — just take a glance at that redesigned shell — that led many first-timers into Android's fold, but it doesn't appear Moto wants it to be anymore. In fact, there's no longer a need for the vanilla Droid line to push Andy Rubin's baby forward. That heavy lifting has now been relegated to Google's suite of Nexus devices.

As it stands, the Droid 4 marries two concentrated markets: consumers clamoring for physical keyboards and the enterprise set. It may seem like only yesterday that IT departments across the globe depended solely upon RIM's server encryption and hardware for mobile enterprise solutions and portrait QWERTYs were all the rage. But the business times, they have undoubtedly changed, upending the tidy tea table established by BlackBerry for the newly pasteurized innards of Apple's iPhone and Google's vast array of Android handsets. Sparked by this "bring your own device" revolution, companies likes Motorola have adapted their strategies, repurposing existing product lines for more pragmatic, niche demos. Which is precisely how the formerly hallowed Droid brand came to this unassuming stage in its natural product evolution. Whether or not your own personal mobile savvy has outgrown it remains to be seen.

Joseph Volpe is ambiguously ethnic. He is also an Associate Editor at Engadget.

BOTTOMLINE

Motorola Droid 4

$200 on contract

PROS

- Top-notch QWERTY keyboard
- Responsive 4-inch qHD display
- Healthy battery life
- Fast LTE speeds

CONS

- Non-removable 1,785mAh battery
- Clumsy backplate

» As the latest addition to Verizon's red-eyed family, the Droid 4 improves upon its predecessors' keyboards, offering physical QWERTY fans one of the most refined experiences on the market.



Ainovo Novo 7 Basic

Ainovo's Ice Cream Sandwich tablet lacks the true everyman appeal of Amazon's Kindle Fire. At $99, this slate is a must-have only for those with the strictest of budgets.

BY JOSEPH VOLPE

It's a world's first coming from a company you've never heard of — if you live outside of China, anyway. Taking Google's newly minted OS and slipping it into an affordable chassis, Ainovo's Novo 7 Basic could very well be a sleeper hit among the tech-obsessed masses. Sure, it may lack the brand equity and tidy content ecosystems that are part and parcel of Amazon and Apple's offerings, but thanks to that $99 price, users may find themselves seduced by the temptation of Ice Cream Sandwich alone. Apart from a small fraternity of devices including the Galaxy Nexus and ASUS Transformer Prime, few devices have officially played host to Android 4.0, lending this 7-inch tab a distinct



advantage over the more expensive, Gingerbread-packing Kindle Fire. With a 1GHz Ingenic JZ4770 mobile applications processor based on a MIPS XBurst CPU, an 800 x 480 LED display and VGA front-facing / 2-megapixel rear cameras, this no-frills slate could blaze a bargain trail past Bezos and Co. So, does it manage to hold its own against its well-known competitors? Or will all that corner cutting reveal this low cost tablet to be just another below-the-bar offering? We deliver the answers to these and other burning questions in the paragraphs ahead.

Hardware

There's no beating around this bush: you're getting what you pay for and in this case, the Novo 7 Basic's body underwhelms. That's not to say its build won't hold up to the duress of everyday use, but the constant stream of squeaks and creaks associated with light handling of the device doesn't do much to inspire confidence. Sheathed in a two-tone plastic casing, Ainovo's more premium tab somehow confusingly manages to be less aesthetically pleasing than its uniformly-designed $79 stablemate, the Paladin. Consumers looking for a palm-pleasing, ergonomically sound construction won't find much to cling to here, as the tab's smooth back gives way to hard edges and attracts more than its fair share of fingerprint filth. At 7.4 x 4.4 x 0.5 inches (187.5 x 112 x 12mm), it's nearly indistinguishable from the Fire, coming in at 0.1 inches shorter and 0.3 inches narrower. These two tabs are comparably thick, but the real tell-tale sign of separation is the slate's extra six ounces of weight. Make no mistake: this is a heavy handheld, one that obviously

doesn't benefit from the use of luxe, ultralight materials.

Ainovo's kept most of the I/O busy work relegated to just one side of the Novo 7 Basic, with every available input, slot and capacitive button taking up residence on the right side. This neatly bunched array includes ports for headphone, HDMI, mini-USB and power sockets, in addition to a recessed reset button and space for a microSD card. Move along slightly to the front side panel and you'll see the usual assortment of Android soft keys (sans search), as well as volume controls that complement the physical rocker located next to the power button. Branding on the unit is refreshingly sparse and made to be as unobtrusive as possible, with a diminutive logo displayed on the upper left front face, as well as one opposite the speaker on the device's posterior. And if you were wondering about those woefully underpowered cameras, the Basic's plunked them both right where you'd expect, situating that VGA front-facer above the menu controls and the 2-megapixel rear shooter on its upper back.

A multimedia repository this tablet is most decidedly not. Armed with an ample 8GB that's further augmented by a removable 2GB microSD card, the Basic is the company's halfway point between planned 4GB and 16GB iterations. Despite occupying this middle ground, it has just enough dedicated space to harbor a sizable library of music, apps, videos and photos, though it's your prerogative to store some of this stuff in the cloud. Most of what this ICS tab can do hinges upon what you, the user, bring to it — namely, third-party apps and content. Prospective owners looking for always-on connectivity should probably up their budgets and gaze adoringly upon other high-end, network-connected slates. The only 3G option this creaky clunker'll cough up is the ability to connect to an external modem. Mercifully, it does come with support for WiFi a/b/g/n, so as long as you're close by to that home network or even a hotspot, access to the wilds of the World Wide Web shouldn't be an issue.

We'd love to spin some marvelous tale telling you how pristine and retina-like this display is, but, again, this is a $99 tablet we're talking about. And really, at this wallet-friendly price, you can't complain too much about the subpar 7-inch 800 x 480 LED-backlit display which, when contrasted with the Fire's excellent 1024 x 600 offering, seems like an expected trade-off. It's not like you're going to be consuming much native media on the Basic anyway, considering it's egregious lack of Android market access (which we sideloaded to no avail). So, unless you have a vast arsenal of .apks to install (ones that'll stick, anyway), prepare to dive deep into whatever dregs of quickie clips YouTube you can dredge up and be content with that. Stark loss of contrast, poor viewing angles and a glare-prone screen? Yes, these three dings conspire to make the slate's visual accessibility a less-than-palatable experience. Even

indoors, under fluorescent lighting, we had a difficult time angling it just so we could discern the screen unhindered.

Performance and Battery Life

Alright, so we know it's not the prettiest, and certainly not the most top-shelf tablet PC you could shell out for, but the true measure of the budget Basic's worth is how its 1GHz MIPS-based Ingenic CPU and 512MB of RAM hold up day to day. Spec-wise, this ICS tab in beggar's clothing won't be turning any heads: it's mediocre, at best, with a distinct lack of dual cores. Still, in our time testing the tablet, we were surprised to encounter relatively few performance hiccups, but nothing so bothersome as to disrupt the entire user experience. Occasional stuttering transitions aside, the overall UI mostly flows uninterrupted, demonstrating a satisfying level of responsiveness. It's worth noting that the force of the device's haptic feedback does take some getting used to, seeing as it's strong (and loud) enough to register as a physical jolt in the hand.

Bound by this temperamental tab's fickle acceptance of side-loaded apps, we weren't able to draft a true benchmark tête-à-tête with other devices using the usual suspects. That said, we did have success cramming Quadrant onto it, which generated a puny score of 913 — and this despite the fact that the test favors lower-resolution gadgets. Stack that up against the Galaxy Tab 7.0's 2,700 and you'll get a clearer picture of just how great the tech divide is here. Ainovo's tab didn't fare much bet-

TABLET	BATTERY LIFE
Ainovo Novo 7 Basic	8:00
Samsung Galaxy Tab 7.7	**12:01**
Apple iPad 2	10:26
ASUS Eee Pad Transformer Prime	10:17
Samsung Galaxy Tab 10.1	9:55
Apple iPad	9:33
Motorola Xoom 2	8:57
HP TouchPad	8:33
Lenovo IdeaPad K1	8:20
Motorola Xoom	8:20
T-Mobile G-Slate	8:18
Samsung Galaxy Tab 7.0 Plus	8:09
Lenovo ThinkPad Tablet	8:00
Archos 101	7:20
Archos 80 G9	7:06
RIM BlackBerry PlayBook	7:01
Acer Iconia Tab A500	6:55
Sony Tablet P	6:50
T-Mobile Springboard (Huawei MediaPad)	6:34
Toshiba Thrive	6:25
Samsung Galaxy Tab	6:09
Motorola Xyboard 8.2	5:25
Velocity Micro Cruz T408	5:10
Acer Iconia Tab A100	4:54
Toshiba Thrive 7"	4:42





ter in SunSpider testing with its score of 5,691.1ms withering at the feet of the Kindle Fire's Silk-rendered browser. Again, this shoddy performance is understandable given the Basic's lowly origins.

Tablets are not smartphones and, as such, they don't suffer the draining double whammy of incessant consumer use and network connectivity. True, they can be just as susceptible to a stream of push notifications, but we expect these WiFi-only, mini-computing devices to sip on their charges for two days, at the very least. Despite lacking the extra 400mAh oomph packed into the Kindle Fire, the Novo 7 Basic's 4,000mAh battery holds up with moderate to light usage well over the expanse of three days. Bear in mind, that's with WiFi enabled and one email account set to sync at 15-minute intervals. We weren't able to truly stress the longevity of the charge with data-hungry apps like Twitter due to the lack of market access, but based on our formal rundown test (video looping, brightness fixed at 65 percent), the tab should last you a full eight hours — right in line with the company's own claims.

Software

In the event you didn't register this tidbit the first few times we mentioned it, we'll remind you once more that Ainovo's tab has been stripped of all essential Googleness — most distressingly, Gmail account integration. How does that work out for the end user? Rather poorly, to be honest. The most enticing part of Google's mobile software is its seamless integration of GApps across all Android-based devices. But without that built-in suite of software, we're left with two productivity options: web browsing and gaming. It's this second point that the Basic really attempts to drive home, loaded up as it is with a handful of games. As you might expect, that world-famous pack of surly, slingshot birds makes an appearance here, in addition to *Spider-Man HD*, *The Last Defender*, *TurboFly 3D* and *Wow Fish*. It's a questionably dedicated purpose for this tablet to be assigned when you take into account its pitiful display, dearth of accessible content (PlayStation certification would go a long way here) and the reliance on touchscreen controls.



We don't expect anyone eyeing this tab to devote more than a few misdirected minutes slogging through its spartan offerings. It could double as your go-to eReader, what with Amazon's Kindle app pre-installed, but if that's your bag, why not just spend that extra $100 and pick up the Fire? Or better yet, just grab a cheaper Kindle Touch. As for its web surfing abilities, well, don't expect to be wowed. Full desktop pages took up to 46 seconds to load on a high-speed wireless connection, though once completed, navigation was rather brisk. Pinch-to-zoom also managed to keep pace with the rapid movements of our fingers without resorting to the dreaded white spaces and checker-boarding.

Camera

Let's be honest here, Ainovo's no Samsung, so this slate's combo of cams' tendency to underwhelm is neither disappointing nor shocking. In truth, you should overlook its optical abilities altogether. The Basic claims to capture video at 720p, but in our tests we found that that's far from the reality. What ends up playing back on screen is a jittery, muddled clip with audio that's clearly overwhelmed by environmental noise.

Photos taken with the device appear much the same, delivering cloudy images with poor contrast and a diminished level of detail. If you've gotten comfortable with the notion of available scene modes to toggle through, then look elsewhere. The only optimization you'll encounter in the settings is the option to adjust white balance. We'd like to call this two megapixel rear module workable, but even that is far too much of a compliment. Your phone is likely far better suited to photography than this thing.

Wrap-Up

Tablets. Everyone wants one, no one's quite sure what to best use them for and their typically premium pricing has kept the category from truly permeating every echelon of the consumer space. So, it would stand to reason that a sub $100 tablet running the latest code out of Mountain View would not only appeal to the most frugal-minded, but also overtake the market entirely. Unfortunately, but understandably, without the backing of billion dollar coffers and the desire to sell units at a loss, Ainovo's Novo 7 Basic just cannot compete in specs, build quality or app selection. The company may have aimed to create the one tablet to serve the lowest common tech denominator, but in the end, that promise is more appealing than the product. Yes, $99 is an irresistible prospect on paper, but for an extra Benjamin you can have dual cores, a solid (if unoriginal) chassis, dependable performance and a direct line to Amazon's retail and content hub. Really, it's a no-brainer. Unless you're keen to add the Basic to your collection of misfit gadgets, we'd strongly advise you bite the bullet and take Bezos up on his cloud-connected lure.

BOTTOMLINE

Ainovo Novo 7 Basic

$99

PROS

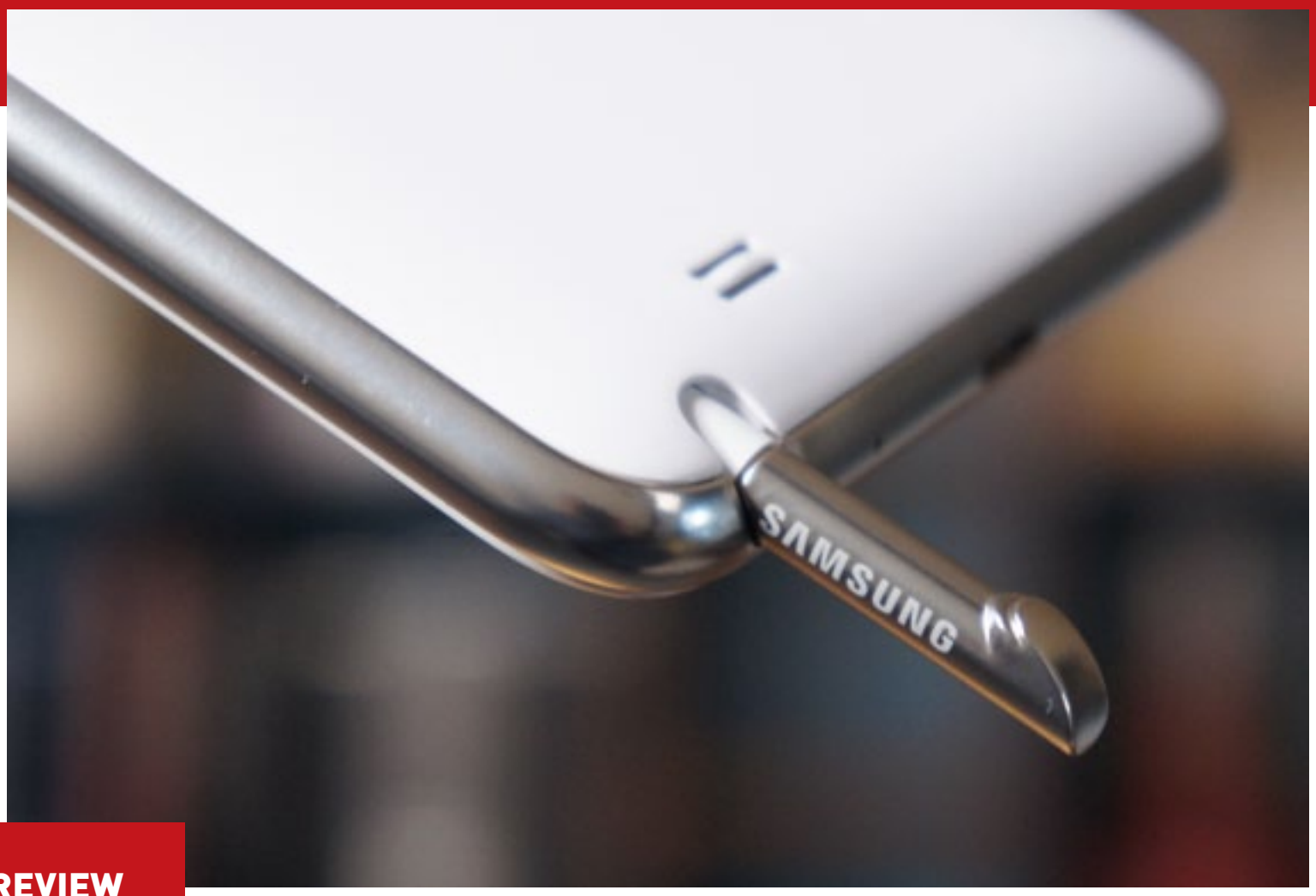
- Affordable price
- Stock Android 4.0.1 OS
- Handful of pre-loaded gaming content

CONS

- Washed-out, low-res display
- Lack of Android Market access
- Terrible cameras, even for a tablet

» Ainovo's Ice Cream Sandwich tablet lacks the true everyman appeal of Amazon's Kindle Fire. At $99, this slate is a must-have only for those with the strictest of budgets.

Joseph Volpe is ambiguously ethnic. He is also an Associate Editor at Engadget.



REVIEW

AT&T Galaxy Note

AT&T's version of the Samsung Galaxy Note isn't the best in the world, but it's still very, very good.

BY TIM STEVENS

It was once said that if a phone or tablet used a stylus its hardware designers had blown it. It was also said that if the software on that device contained a task manager that coders had similarly missed the mark. The Samsung Galaxy Note on AT&T contains what many would consider a stylus and, if you hold down the Home button, you're presented with what can only be described as a task manager.

So the Galaxy Note, Samsung's massive 5.3-inch "superphone," is critically flawed then, right? No. It is, in fact, one of the best phones to hit the market since another Samsung powerhouse — the Galaxy Nexus. It's a device with a lot to love and is the kind of phone that would make almost every Android aficionado swoon. However, with its massive 5.3-inch display and generally understated styling, it isn't for everybody. We reviewed it before in European guise, but now read on to see if AT&T's $300 LTE version of this big brute is just right for you.







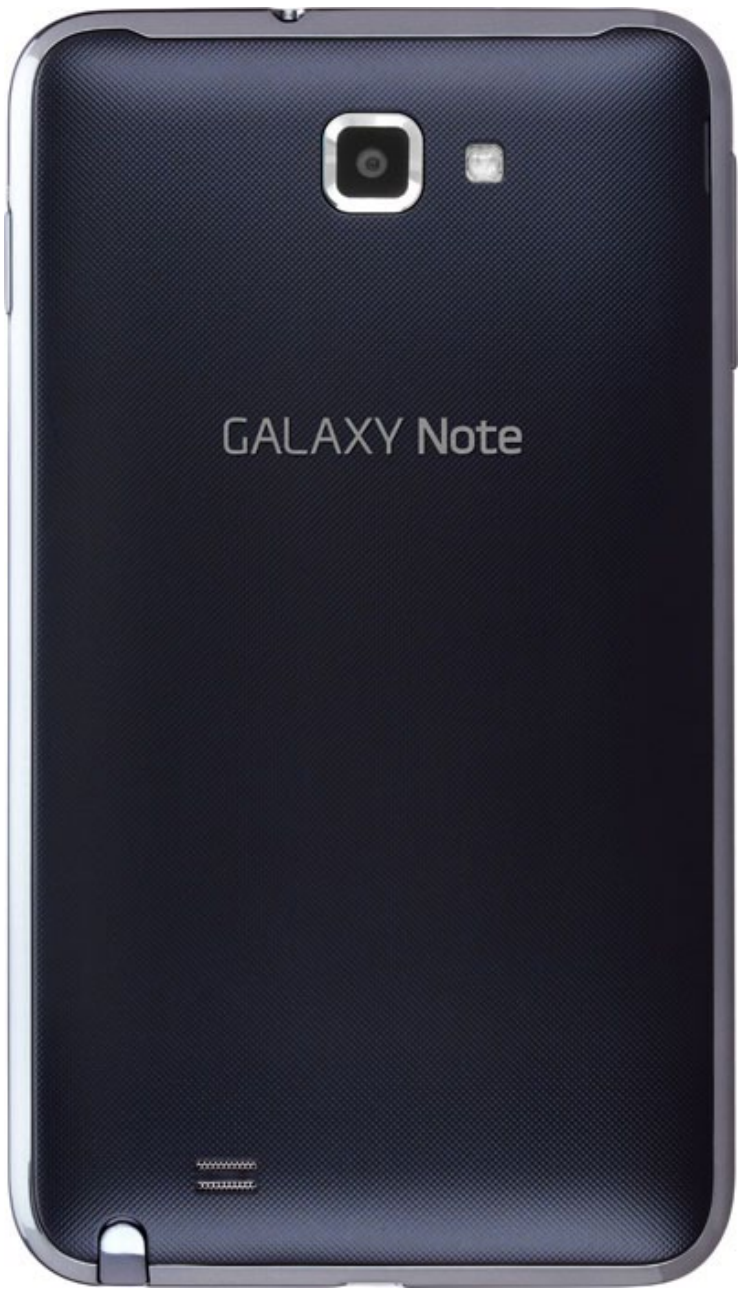


Hardware

Let's get this out there right away because it will surely be your first impression: the Galaxy Note is a big honkin' phone. While something this size that can make phone calls isn't exactly unprecedented (see: the Dell Streak 5), this is a footprint that has proven too large to fit into many consumers' lifestyles. That could definitely change here. What initially feels cumbersome and unwieldy quickly becomes natural and, just like 4.3-inch smartphones made 3.5-inchers seem petite, a few hours with the Note will leave those 4-inch devices seeming rather more compact than before.

That size is thanks to the 5.3-inch HD Super AMOLED panel up front, with a 1280 x 800 pixel count. We'll talk more about that shortly, but we can't resist spoiling ourselves by saying it's one of the nicest displays we've yet seen on a smartphone — even if the dimensions here extend well beyond what's considered average. What's truly new is on the inside, a 1.5GHz dual-core Snapdragon processor. That's a step up in clock speed from the 1.4GHz Exynos processor in the original Note, but as we'll see in the performance section below, the speed of the device has not been similarly up-rated. (There we go spoiling things again...)

That processor is paired with 1GB of RAM for short-term duties and 16GB of storage for archival purposes, though



there is an empty microSD slot waiting should you need a little more room ahead of the fifth season of *Mad Men*. It offers 802.11a/b/g/n, Bluetooth 3.0+ HS support and, for longer-range data communication, supports GSM/GPRS/EDGE (850, 900, 1800, 1900MHz), UMTS/HSPA/HSPA+ (850, 1900, 2100MHz) and, of course, LTE (bands 4 and 17, if you're keeping track).

The dimensions provided for the Note are the same as the international release — 146.85 x 82.95 x 9.65mm (5.78 x 3.27 x 0.38 inches) — so any fears that the new silicon inside might have resulted in even more to love on the outside can be safely put to rest now. It is, however, just a tick heavier, tipping over at 183 grams (6.45 ounces) compared to its predecessor's 178. Perhaps it indulged in an extra bag of peanuts on the long flight over.

The camera array hasn't changed: 8-megapixel sensor paired with an LED flash around the back, capable of capturing 1080p/30 fps footage, while a 2-megapixel shooter is peeking out at you from the somewhat generous bezel above the display on the front — right next to the mirrored AT&T logo that now comes duly attached.

On the bottom of the screen are the typical four capacitive buttons found on American Android devices — Menu, Home, Back and Search. This marks a change from the international release, which had a single physical Home button flanked by Menu on the left and Back on the right. We prefer that layout to the capacitive arrangement we get here, but sadly it seems the carriers prefer the button-free look. Those capacitive inputs light up with the screen, which on the dark Carbon Blue Note makes them much easier to see. In direct light, though, the backlight on the Ceramic White Note actually makes the buttons *harder* to spot. Plus, with that hue there's an annoying glow around them where the backlight leaks through.

On the top of the right side is the power/lock button, opposite that on the left side is the volume rocker. Up top, slightly offset to the right is the 3.5mm headphone jack and, on the bottom, smack in the middle, is the micro-



Even if it gives you flashbacks to your Windows Mobile days we encourage you to remember that this is *not* a stylus...

USB port for charging and MTP data exchange. But, there's something else tucked in down there: the S Pen.

S Pen

Though it may look like a stylus, and despite feeling like a stylus, and even if it gives you flashbacks to your Windows Mobile days we encourage you to remember that this is *not* a stylus. At least, it isn't if you listen to the Samsung party line. This is an S Pen.

What's an S Pen, then? Well, it's a battery-free capacitive and pressure-sensitive plastic pointing stick that's built upon Wacom technology. Basically, it's a stylus. Yes, it's smaller than the wand you get with something like a Bamboo tablet, but the styling is at least reminiscent of the bigger ones. New on the US version of the S Pen is a gray button, which is slightly easier to find than the all-black version shipped internationally, but still almost impossible to locate by feel. The slightest little ridge or bump on the button would have been a welcome addition. (Those who spring for the white Note will, naturally, get a

white S Pen with a gray button.)

You can hold the button and do a long press on the screen to capture a screenshot, do two taps to bring up the S Memo application to make a note. You can also use it to perform gestures to replicate the Android buttons — hold and swipe up for Menu, down for Home and left for Back. You'll be doing this a lot because the stylus annoyingly can't be used on the capacitive buttons at the bottom of the display. Prod or poke at them with the thing all you like, they won't respond.

Thankfully, the S Pen works with just about everything else. It can be used to just mimic finger taps on the screen with greater precision, which we found most enjoyable for gaming. Titles like *Fruit Ninja* were a little more fun with a real weapon to wield, while physics-based games like *World of Goo* were that much easier.



Annoyingly, though, actually writing with the thing is a challenge. Ostensibly, this phone was designed to replace something like a Moleskine notebook that many journalists stuff in their back pockets, but writing legibly with the S Pen is a difficult proposition. You must write far larger than you would with a pen on paper, so what might have been a few lines of notes can take a few pages of an S Memo. Of course, with 16GB of storage you can have as many pages as you like, but collating them later proves a bit of a challenge.

Writing is a bit easier with what Samsung is calling the S Pen Holder Kit — basically a hollow pen into which you can slot an S Pen. It's roughly Sharpie-sized and makes the writing experience more pleasant, but for something of a steep cost: $50. That's for a pen that doesn't write on paper and has no means of actually attaching to the Note. It does, however, come with an extra S Pen, which go for $30 on their own. Yes, you'll be wanting to take extra care to make sure you don't lose yours.

Display

If this phone is too big it's only for the sake of making room for that display. It is, again, an HD Super AMOLED panel measuring 5.3 inches diagonally and



sporting a resolution of 1280 x 800. Now, phone displays with 720p or greater resolutions aren't exactly unheard of these days (hello, Galaxy Nexus), and the 284ppi pixel density here won't set any records either (hello, iPhone 4S), but when it comes to the quality of a display you can't just look at numbers.

This is a non-Plus display, meaning it uses RGBG sub-pixels. This PenTile arrangement was the subject of many lamentations when the Galaxy Nexus was announced, that presence of extra green sub-pixels causing some display purists to lose sleep, but we didn't find much to complain about here. Yes, we would certainly prefer a Plus display, and the color reproduction would surely be better if it were, but what's actually in the phone is beautiful.

Because it's an AMOLED display the contrast is phenomenal — true blacks and searingly bright whites. Viewing angles are very good, though we did notice a strong shift to blue at particularly extreme angles. And curiously, Samsung (or AT&T) opted to not include the "Screen mode" option found on the international Note that lets you select from three color settings on the display. So, you're stuck with the default.

Call Quality and Speakerphone

While we quickly got comfortable holding the 5.3-inch Note in our hands, even after living with one for some time we couldn't help feeling self-conscious holding it up to our head to make calls. Unless you've been blessed with a particularly large cranium the Note is going to look a little... *large* held up to an ear.

That said, should you need to make

SAMPLE IMAGES









Unless you've been blessed with a particularly large cranium the Note is going to look a little... *large* held up to an ear.

a call here, the Note is a very willing partner. Quality is good and, with the phone never struggling for signal, we came through loud and clear to those on the other side of the device. Even on speakerphone we were heard without a problem, though we do have one complaint: the speaker's location. It's less than a half-inch away from the S Pen's little cubby and we constantly found grabbing at the opening for the speaker with our fingernail when trying to pull out the stylus. We'd have preferred one or the other placed on the opposite side.

Camera

This is the same 8-megapixel sensor and lens getup that we saw back in our original Note review, and indeed the same as can be found in the Galaxy S II. Left on full-auto the camera does a good job of adjusting for color and brightness. As phone-sized camera sensors go this one fares well even when light is at a premium and will not leave you disappointed in most situations.

That said, the experience is even better here thanks to the bigger screen. What you get is basically the world's biggest viewfinder this side of a tablet, making framing and eyeball adjustments for exposure easy. Yes, we've said our piece about how taking pictures with tablets is more of a chore than a joy, but the Note is just small enough to be manageable.

Software

The Galaxy Note is running a TouchWiz'd version of Android Gingerbread — 2.3.6, to be precise. As Android customizations go, TouchWiz is among the lightest, and we didn't find ourselves minding it. In fact, the camera app here and the custom widgets and controls tend to make the phone a little nicer to use. We had no complaints there.

However, the extra resolution and dimensions of the screen aren't always well-handled. When it's good it's good, like the home screen, which offers five columns of icons rather than the standard four. More icons is a plus when your phone is stuffed with apps, as most phones are these days. And, of course, mobile web surfing with this many pixels at your disposal will put you right off WVGA phones for good.

Many apps, though, simply don't handle the resolution well. Signing in to Netflix, for example, gives you a giant sea of crimson with two tiny login boxes floating in space. Buttons in some apps, like





the reply button in Gmail, are awfully tiny compared to other controls, like the comparatively giant Archive and Delete buttons at the bottom of the screen.

This mish-mash of large and small graphical elements is hugely disjointing. The Gingerbread build here just doesn't feel comfortable — stretched out in some places, squished down in others. It clearly wasn't meant to run on a display this size. This leaves us longing for that Ice Cream Sandwich build that we're told is coming soon.

S Memo

The biggest piece of custom software here is S Memo. Hold the S Pen button and double-tap anywhere to create a new memo, or do a long single tap to capture a screenshot which you can doodle on. We could definitely see this being useful for grabbing a picture of something and then scribbling a note and sending it off to a co-worker — say, making a comment on a home renovation or the design of a wedding dress. But, given how much trouble we had in writing legibly with the S Pen, best keep it short.

You can also hop into S Memo directly and create things like picture collages. Images can be inserted from the Gallery or taken directly from the camera, moved and resized and then, of course, scribbled upon. However, it's worth noting that once you save and exit your note all those layers are compressed — you can no longer resize individual images. That's slightly annoying, but they are at least easily shared as flat image files.

BENCHMARK	AT&T GALAXY NOTE	INTERNATIONAL GALAXY NOTE	GALAXY TAB 10.1
Quadrant[1]	3,319	**3,998**	3,200
Linpack Single-thread (MFLOPS)[1]	42.98	**64.3**	55
Linpack Multi-thread (MFLOPS)[1]	76.33	**95.66**	81
NenaMark1 (fps)[1]	54.9	56.67	**59.8**
Neocore (fps)[1]	55.6	51.77	**59.8**
SunSpider 0.9.1 (ms)[2]	3,059	**2,902**	3,369

[1]Higher is better
[2]Lower is better

We were, however, disappointed to find that the app doesn't really do much with the stylus button. We could see it working as a quick toggle to switch between drawing and erasing, for example, which would save going back up to the top menu all the time. As it is the button is really only good for initiating gestures.

Performance and Battery Life

We were a bit concerned when we learned that the AT&T Galaxy Note would not be rolling with Samsung's own 1.4GHz Exynos processor and would instead have a 1.5GHz Snapdragon chip inside. The clock speed may be higher but the performance is indeed lower. You can see the full results in our benchmarks table, proving this phone measurably lags behind the international release that shipped first, too.

Apps load quickly and things are generally responsive on the device, but the annoying stutters and random pauses that plague lesser phones are definitely noticeable here. It is still a quick device, though not nearly as responsive as the Galaxy Nexus or, indeed, the elder Note.

Sadly that decrease in performance doesn't come with an increase in battery life. A healthy 2,500mAh cell lies beneath the flimsy (and scratch-prone) battery cover here, far larger than your typical smartphone. (The most recent Galaxy S II, for example, has an 1,850mAh pack.) But, longevity just fell on the long side of average, with the phone managing eight hours and eight minutes on our standard rundown test in an HSPA+ area. That's with LTE enabled but not connected, as there's annoyingly no way of disabling it. (Even dialing *#*#4636#*#* doesn't work.) The previous Note managed a healthy 90 minutes longer.

However, we can't argue with the network performance. AT&T's LTE network is still blissfully underutilized by the teeming masses, leaving plenty of bandwidth for those lucky few early

adopters. Testing in and around New York City we saw download speeds as high as 34Mbps and uploads as high as 14Mbps. Average speeds were closer to 22 down and 12 up — very healthy indeed. Again, overall signal strength with the Note is good and we had no problem grabbing and maintaining a strong signal.

Wrap-Up

We've already spent quite a bit of time with the international version of this phone, but what was once a bit of a niche device — would-be owners facing hefty import duties and confused looks from friends — has now gone mainstream, with the Super Bowl commercial to match. That kind of exposure will have a lot more people wondering if this kind of thing can work for them and for many we think the answer is yes, it could work quite well indeed.

The Note is big, but not unmanageably so. Those with small hands might find it a bit unwieldy at times, but even if your glover has you written down as XS you shouldn't rule this out completely. After a few hours with the Note you'll very quickly become accustomed to the size, and once you have you won't want to go back.

With the decrease in performance and battery life here, the international release is still the better phone overall, and we can't help but be disappointed by that. Still, given the relative affordability of the US release of the Note ($300 on-contract) and its ease of availability, we certainly wouldn't blame you for heading to AT&T and ordering yourself an American Superphone. It's one of the best phones of any size on the market today, regardless of what market you're in.

Myriam Joire contributed to this review.

Tim Stevens is Editor-in-chief at Engadget, a lifelong gamer, a wanna-be racer, and a born Vermonter.

BOTTOMLINE

Samsung Galaxy Note

$299

PROS

- Solid battery life
- Screen as beautiful as it is spacious
- LTE speeds

CONS

- A bit too large for some
- Performance and battery life not as good as international release
- No Ice Cream Sandwich yet

» AT&T's version of the Samsung Galaxy Note isn't the best in the world, but it's still very, very good.

LIVE FROM CP+ 2012

HOT CAMERAS, BIG SENSORS & THE LATEST PHOTO IMAGING TECH

BY ZACH HONIG













This year's CP+ Camera & Photo Imaging Show brought thousands of photography fans to Yokohama, Japan, a metropolis just a short train ride away from Tokyo. While it is still primarily a Japanese affair, it served as the global launching ground for dozens of top camera models, including the Nikon D800, Olympus E-M5 and Pentax K-01, to name a few. Bag and tripod manufacturers could be found spattered amongst the camera giants, but overall this show was more about the latest shooters than gimmicky accessories. We've already said sayonara to the Land of the Rising Sun, but we've culled our coverage to bring you the best and brightest from the trade show floor.



Canon PowerShot D20 Ruggedized Point-and-Shoot

Remember the Canon PowerShot D10? The company's first ruggedized underwater cam was a solid snapper, but its bulky submarine-like design made it impractical for most surface-based shoots. The PowerShot D20 offers a drastic improvement over its predecessor in the appearance department, more closely resembling a compact point-and-shoot than a subaqueous vessel. We can't speak to the cam's image quality just yet, but assuming its on-par with the D10, we'd say the latest D model is worth some serious consideration as an upgrade, even for a reduction in footprint alone. The D20 includes a 12.1-megapixel HS (high-sensitivity) CMOS sensor, a bright 3-inch LCD and a 5x 28mm optically stabilized zoom lens. It's waterproof to depths of 10 meters (33 feet), can survive drops from a height of 1.5 meters (5 feet) and can operate in temperatures ranging from 14 to 104 degrees Fahrenheit. There's also a top sensitivity of ISO 3,200, and a built-in GPS.

We spent a few minutes with the D20 at







Canon's booth, and were quite impressed with the improved design. Naturally, it's a solid-feeling point-and-shoot, with protected components and airtight port covers. Company reps didn't bat an eye when we unintentionally tested the camera's durability with a mild drop. There's a standard-issue PowerShot interface, with a fairly straightforward menu structure, and it felt plenty snappy, focusing and firing off an image almost instantaneously. It's noticeably larger than the company's more compact land-limited models, but there's no reason you wouldn't feel just as comfortable using this to shoot your child's first birthday party as you would their first scuba lesson. The $349 PowerShot D20 won't be hitting stores until May. — *ZH*



Olympus OM-D E-M5 Micro Four Thirds Camera Preview

Olympus has embraced the camera designs of yesteryear for several generations, from its first Micro Four Thirds models to last year's E-P3. But now the Japanese camera maker is stepping up its retro game, announcing a brand new line of Micro Four Thirds cams. Meet the OM-D. A dramatic departure from the more modern-looking PEN cameras, this new line of mirrorless models, specifically the E-M5, in many ways duplicates the design elements of the 1970s-era OM System. The first consumer camera in that SLR lineup, the OM-10, served as clear inspiration for the slightly boxy, black or silver and black magnesium alloy digital model we have today. We were able to spend some time with the Olympus E-M5 before its announcement at CP+, and were extremely impressed with what we saw.

The 16-megapixel Live MOS Micro Four Thirds sensor is the crown jewel of the E-M5, and comes complete with five-axis

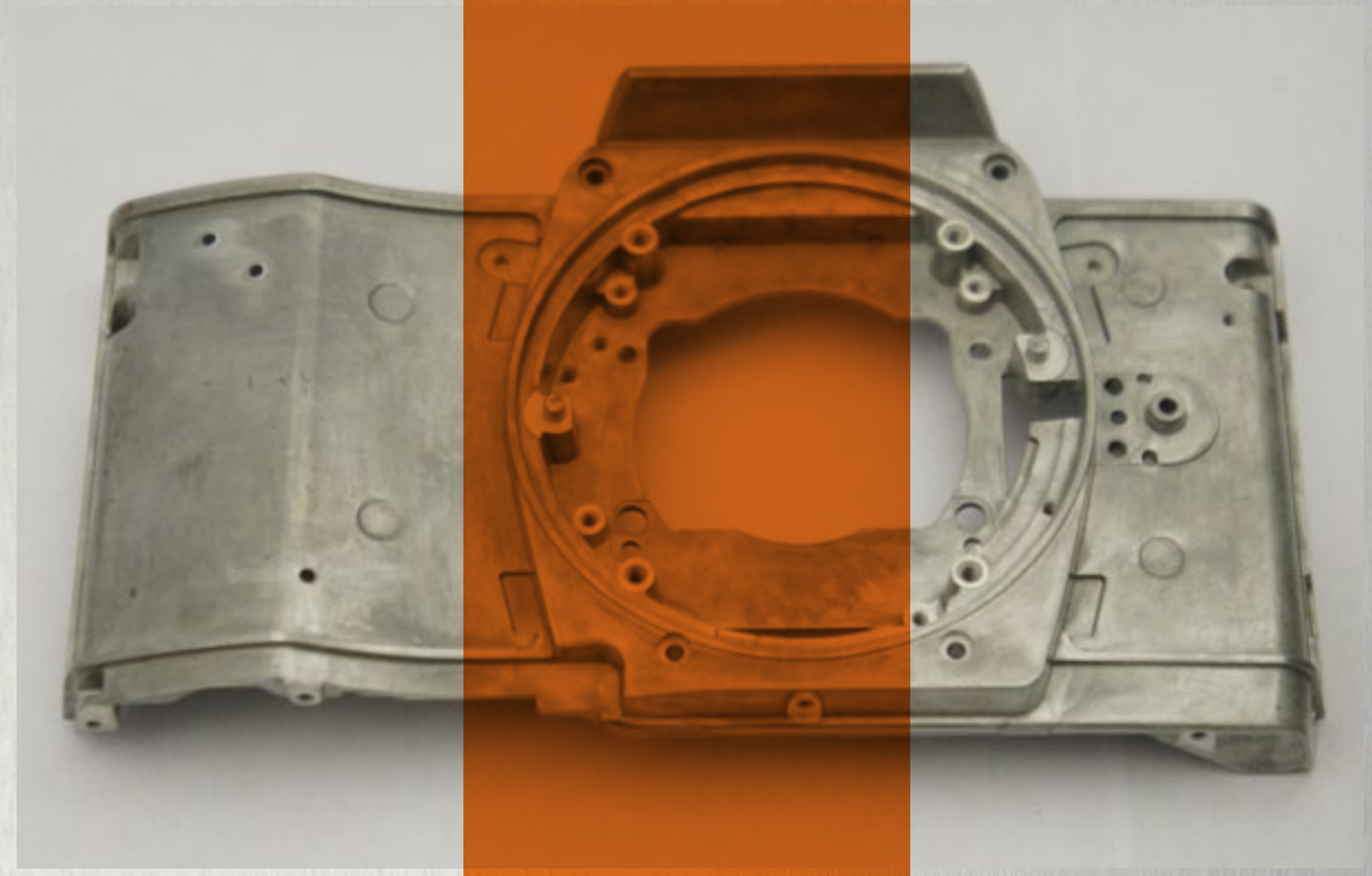






image stabilization, allowing the sensor to shift up, down, forwards, backwards and diagonal to compensate for camera movement, enabling what Olympus reps describe as "a built-in Steadycam." Perhaps even more impressive, however, is the camera's autofocus system. Olympus claims that the E-M5 features the "world's fastest autofocus," of any camera — yes, that even includes top-of-the-line DSLRs. We went on a quick indoor shoot with the cam and were incredibly pleased with the focusing system's performance — subjects came into focus instantaneously, even in low-light. We can't confirm that Olympus claim, but this thing is definitely very, very fast.

While the E-M5 clearly outperforms the E-P3, it's designed to sit alongside that camera and other PEN-series models, with a higher price point. In addition to autofocus speed, it bests the E-P3 in low-light performance, offering an image sensitivity range of ISO 100-25,600. Unless you prefer the more modern design of the PEN series or don't want to spend the cash for the E-M5, there's really no reason not to



opt for this newer, faster model. We were not permitted to take home images captured with the pre-release model we used during our demo, though we did snap a few frames at both ISO 25,600 and ISO 12,800. Noise was indistinguishable on the articulating 3-inch touchscreen during an initial preview at ISO 12,800, though we could make it out in the ISO 25,600 shot. Noise became much more apparent when we zoomed into the image, of course, but according to Olympus reps, ISO 12,800 is "totally usable," and it's important to note that our sample was an early version of what the company will eventually ship.

The camera is quite intuitive, with a simple multi-tab menu system and a variety of dedicated controls. There are two dials up top, just as you'll find on the Sony NEX-7 — in manual mode, one adjusts aperture while the second changes shutter speed. Touch-screen control is available as well, with tap-to-focus and touch-shoot functionality, but you'll need to use the buttons to the right for more complex adjustments. As you'd expect for any interchangeable lens camera, there's a full manual mode, along with the usual aperture and shutter-priority, program and automatic shooting modes. There's a nine-frames-per-second burst shooting mode when in single-shot autofocus mode, which is among the fastest we've seen in a mirrorless model — that consecutive capture option drops to 4.2 fps when snapping with continuous autofocus, however.

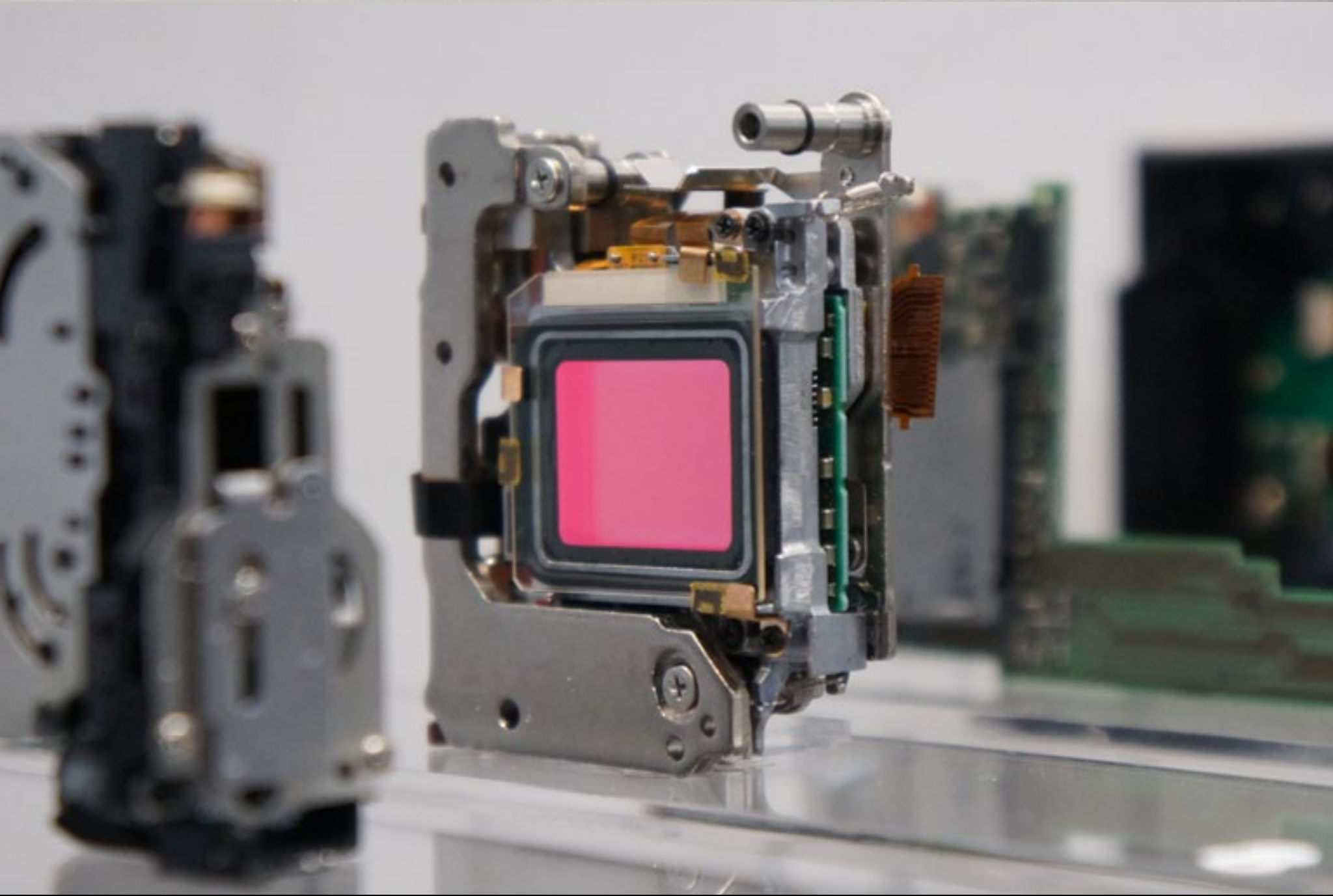
Overall, the E-M5 sounds like a win, but how much does it cost and when can you make it yours? Olympus has priced the mirrorless cam a hair shy of a grand, at $999.99. You can also purchase the black or silver E-M5 as part of a 12-50mm or 14-42mm kit, with pricing set at $1,300





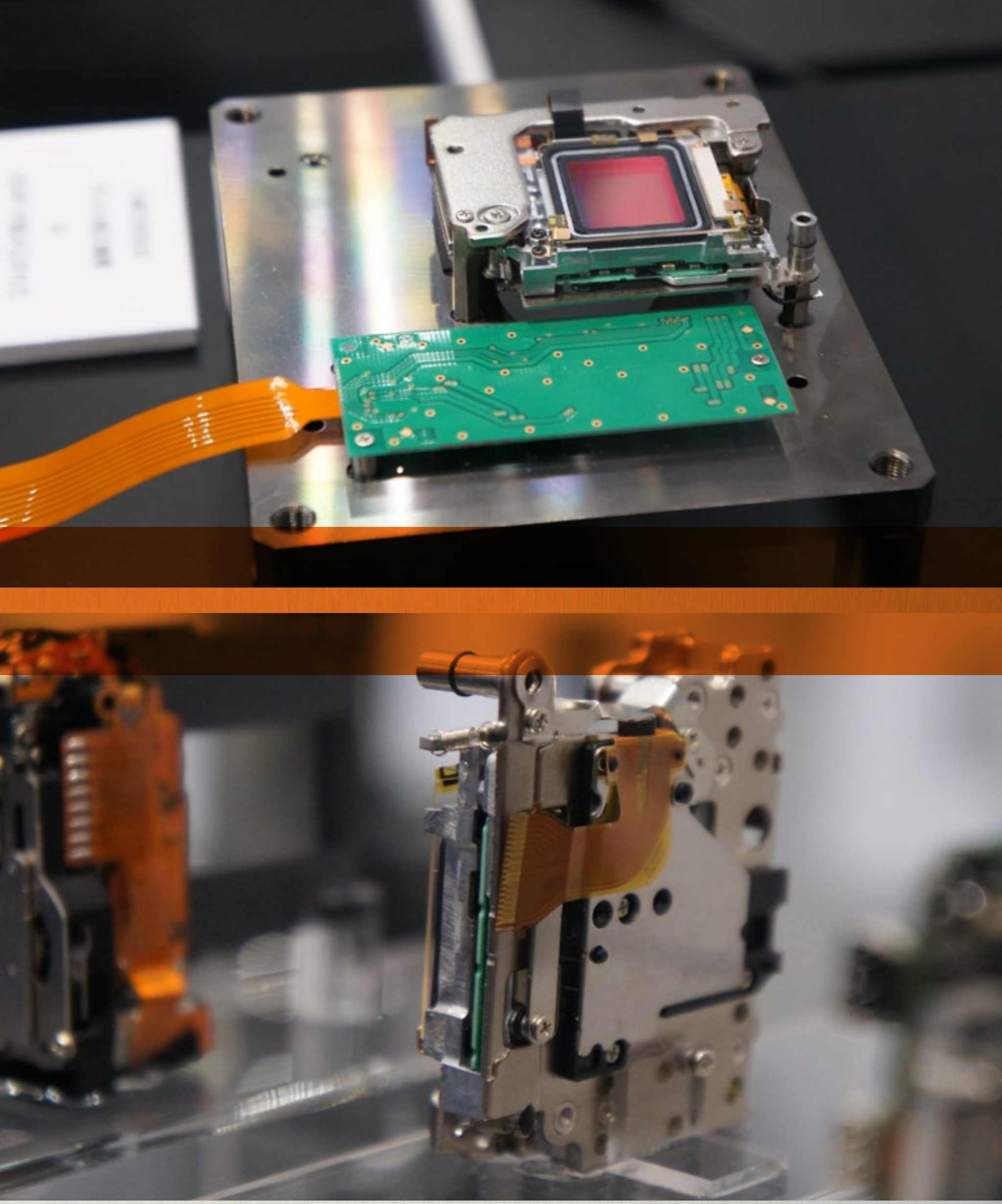


and $1,100, respectively. Consider us sold. The camera supports all existing Micro Four Thirds lenses and accessories, but two new higher-end primes are expected to hit stores later this year, including a 75mm f/1.8 portrait lens and a splash and dust-proof 60mm f/2.8 macro. There's also a new splashproof Four Thirds adapter on the way, along with an excellent optional camera grip with detachable battery. And while you may have noticed that there's no built-in flash, the new FL-600R should have you covered, with a guide number of 50, a built in LED light for video capture and a quick-charge battery. For now, that's all she wrote, but we'll certainly be hearing plenty more about the OM-D series in the months and years to come. — *ZH*



Olympus OM-D E-M5 Five-Axis Sensor-Shift Image Stabilization

Olympus's inaugural OM-D mirrorless interchangeable lens camera, the E-M5, boasts the world's fastest autofocus and a pretty fantastic design, but it's also the first camera to implement a new five-axis sensor-shift image stabilization technology, that allows the lens to compensate for camera shake. The company was on hand at CP+ 2012 to demo the new sensor, which really does shift every which way to keep your photos and video still. We'll of course need to spend some time shooting photos and video with the E-M5 before labeling the five-axis sensor a success, but from the demo we saw today, it looks pretty darn promising.





Sony Cyber-shot TX300V Inductive Charging Camera and Dock

You may have thought that Sony's Cyber-shot TX200V was the company's most powerful point-and-shoot to date, but that's not exactly true. The company has a Japan-only version of the TX200V called the TX300V, and it's quite a compelling upgrade. The camera's most appealing addition comes in the form of a wireless charging and transfer dock — it refuels your pocket snapper through inductive charging while also wirelessly transferring images to your computer using Transfer-Jet. It can also draw power from your computer's USB port (no AC adapter required). Oh, and it ships in the camera box.

Sadly, there aren't any plans to sell this iteration outside of Japan, and Sony's mum on pricing and availability. The camera transferred images and charged without issue during our demo (the Charge indicator lit up, at least — we didn't stick around to watch it charge the camera). *— ZH*



Nikon's 36.3-megapixel D800 DSLR

Thirty-six megapixels. That's the native resolution of Nikon's long-awaited FX-format digital SLR. The D800 was designed with all professional photographers in mind, but with 36.3-megapixel captures (yes, that also means 36.3 megapixels in RAW, or 15.4 in DX format), the Japanese camera maker's latest DSLR output is likely to far exceed the needs of many. It also limits low-light shooting capabilities — the D800 is a full-frame camera, but even so, with a standard sensor capturing 36.3 megapixels, its high-ISO performance is unlikely to match the likes of the D4, or Canon's new 1D X. It's for this reason that Nikon limited the camera's top native sensitivity to ISO 6,400, or 25,600 in Hi2 extended mode.

As you might expect, the D800 adopts many new features from the D4, while maintaining a smaller D700-like footprint.







You get the same Advanced Scene Recognition System with 91k-pixel 3D Color Matrix Metering III, 1080/30p HD video with 20 adjustable audio levels and uncompressed HDMI output, in-camera two-consecutive-shot HDR and Active D-Lighting. In addition to the difference in resolution (remember, more megapixels doesn't necessarily translate to better quality images), you also lose the D4's 2.7x crop mode, which effectively multiplies your focal length by 2.7, bringing you closer to your subject without the need for a longer lens or teleconverter.

Significantly smaller than the monstrous D4, the D800 isn't the most compact full-frame DSLR that Nikon's released to date. It's noticeably taller than the D700 (by roughly half an inch), with a higher pentaprism and smooth appearance. But a new body design isn't the only element differentiating the D800 from its predecessor. The camera offers excellent contrast-detection autofocus, allowing you to sharpen your subjects much more quickly while in live view. The D800 also offers video improvements, and lets you capture 29 minutes and 59 seconds in a single clip in normal quality









mode. Because of the DSLR's larger footprint, you'll need to upgrade your grip along with the camera — the MB-D12 attachment uses the same battery as the D4, and boosts the camera's burst mode from four frames per second to six in DX mode.

And what about price? The basic D800 will run you just shy of $3,000 — without a lens, of course. Nikon is also offering a second version, called the D800E, that is expected to retail for $3,300. This model captures slightly finer detail and "enhanced" resolution by removing the low-pass filter. Without the low-pass filter, you're likely to notice moire, though a new setting in the Nikon Capture NX2 software will enable you to compensate without losing sharpness. We took a look at side-by-side images captured by the D800 and D800E, but weren't able to differentiate between the low-resolution samples. Nikon reps explained that the differences can be incredibly subtle, and are most distinguishable when capturing fine details, such as individual hairs in an uncompressed D800E image. If the mainstream version will suffice, you can pick up the D800 when it hits stores in late March, while the specialty "E" model will ship a few weeks later in mid-April. *— ZH*

Sharif Sakr and James Trew contributed to this report.



Pentax K-01 Mirrorless Camera Doesn't Feel as Cheap as It Looks

After Pentax boasted about the performance of its incredibly small Q mirrorless cam, we're certainly justified in approaching the company's latest ILC with a bit of skepticism — especially given its blatant toy-like appearance. But after spending a few minutes with the K-01 at Pentax's CP+ booth, we can confirm that the compact camera doesn't feel nearly as cheap as its looks may imply. The camera includes a brand new 16.28-megapixel APS-C CMOS sensor — a far cry from the 12-megapixel 1/2.3-inch imager included with the petite Pentax Q. There's also a bright 920k-dot 3-inch LCD, a sensitivity range of ISO 100-25,600 (!) and 1080/30p video capture. It's also, believe it or not, compatible with Pentax's range of K-mount DSLR lenses.





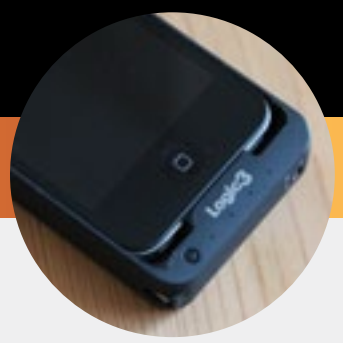


The K-01 is a bit hefty for a mirrorless camera — it dwarfs the near-pocketable Pentax Q — and has a weight to match its rather large footprint. The cam actually feels quite durable, though we're definitely not sold on its "fun" Michael-Graves-meets-Fisher-Price design (think smooth corners and bright colors). There's a built-in pop-up flash, along with a hot shoe positioned just over the lens. There's also — much to our surprise — a microphone input. We can't imagine pairing this thing with a pricey external mic rig, but if you're not too embarrassed using this for professional applications, the included audio input may come in handy. The $750 (body only) K-01 is expected to hit stores next month.

Zach is a Senior Associate Editor and heads up Engadget's features content. He's also a lifetime lover of everything aviation and photography.

IN REAL LIFE

Welcome to IRL, an ongoing feature where we talk about the gadgets, apps and toys we're using in real life and take a second look at products that already got the formal review treatment.

1. 

2. 

3. 

Logic3 PowerSleeve, HP Folio 13 and a Trio of Nintendo Handhelds

BY ENGADGET STAFF

This week's IRL is a bit of a mixed bag, with tales of gadgets well-used and those deployed for pure pseudo-science. In two paragraphs, Mat Smith sums up his experience with three generations of Nintendo DS handhelds, while Dan Cooper attempts to explain why he's still using a gadget he obviously hates. And Dana, our resident laptop reviewer, tries leaving the 'ole six-pounder in the office and going home to an Ultrabook instead.

Logic3 PowerSleeve

My comfort with the iPhone 4 and Cupertino's refusal to expand the body by a millimeter for a more substantial battery has forced me to extreme measures. I blunted the elegant beauty of my fondlephone with a battery sleeve that promised an additional twelve hours of use. Sadly, Logic3's PowerSleeve for iPhone 4 is a necessary evil I have grown to deeply resent. Its matte paintwork began chipping off as soon as I opened the packaging, and the rubber backing collects scratches as if it were a vocation. A micro-USB port was added seemingly as an afterthought, jutting out of the rounded corner, whereas if it were a few millimeters higher it would have a much cleaner line. The aperture



the port sits in does little but mercilessly attract all of my pocket lint; it requires cleaning before I can recharge it.

I'd forgive all of this if I weren't terrified the device is one day going to spontaneously combust in my trouser pocket. During a call, it picks up GSM Feedback, and in quiet moments you can clearly see — and hear! — fizzing electricity sparking between the 30-pin dock connector and the handset proper. It's made me reticent to use it to recharge my iPhone, since both get so outrageously hot you can't keep it on your person as it works. Worst of all, it's a terrible case (particularly compared to the Apple bumper), since the upper half of the phone is exposed and there's no lip to separate the screen and any surface, which was the cause of the one scratch gracing the front of the glass. If you don't hear from me again, I'd say the Logic3 must have gotten to me while I was sleeping. *— Dan Cooper*

Nintendo DS, DS Lite and DSi

I've now managed to work my way through three different iterations of the Nintendo DS. I was there for the silvery clunky original, with a paint job that could only be described as Depressing Grey. But it lasted me through *Mario Kart* and far too many *Advance Wars* play-throughs. When the blanc wafer-thin DS Lite arrived, I had (at least in my mind) already invested enough in Nintendo's dual-screen back catalog to warrant the upgrade. At the same time, I had transplanted myself to Japan, where the likes of Yodabashi Camera often shoehorn in attractive freebies alongside internet sign-ups. Beyond the typical Nintendo gaming joys, the company was pinging out all sorts of educational titles in its motherland, making it an ideal tool for an overzealous Japanese learner. Kanji stroke orders make a lot more sense when you're able to replicate them with the DS's stylus, and there



were plenty of games aimed at middle school kids looking to ace their tests. Add in the availability of Japanese language games (region-free) and the likes of *Final Fantasy* remakes where I know the story ahead of the game, and you've got a damn pervasive learning tool.

Unfortunately, my DSi (yes, I upgraded again) met an untimely end last year, and since I've returned from working in Japan, learning the intricacies of yet more kanji dropped down the list of priorities. I played a fair bit with a review model of the 3DS and came away thoroughly unimpressed with the miserly battery life. Until Nintendo fixes that in its next hardware refresh, I'm still in the market for another DSi. *— Mat Smith*

HP Folio 13

About those laptops I review: I send them all back. Mostly for ethical reasons, but also desk-cleaning purposes. (Having a studio apartment piled with notebooks really isn't awesome.) And I'll return the HP Folio 13 too, though admittedly I've held onto it longer than most. I wanted to do an experiment, you see. Through benchmarks alone, we've already established that Ultrabooks are generally powerful enough to use as primary machines. The question is: would you want to? After all, most models have crappy, lower-res displays, and many suffer from some combination of a shallow keyboard and / or flaky trackpad. The Folio is no exception, even if it is one of my favorite Ultrabooks.

Ultimately, I love coming home to the Folio, but with the understanding that it's a secondary machine, a foil to the 15-inch beast parked in my office. I can't tell you what a relief it is to leave Engadget HQ and not have a five-and-a-half-pound laptop hanging from my shoulder. I love having a fast, featherweight PC that I can use to work from my couch, or take to meetings and tradeshows. (My latissimi dorsi

would have thanked me if I thought of that *before* CES.) For weeks, I've been using the Folio to edit Office documents, write stories and chat with colleagues in Pidgin. The little guy keeps up, and I haven't once suffered a hiccup or hang. The keyboard remains a delight to type on; you know it's good because it doesn't call attention to itself. If I use this for just a couple hours after I get home, I only end up charging it once every two or three days. I do wish the resume time was closer to two seconds, not five, but now I'm just scraping the bottom of the barrel.

Still, I would never want something like this as my main PC. Its stiff clickpad gets tiresome; though it's fine for brief use, I wouldn't want to haggle with it for 50-plus hours a week. And, I've grown accustomed to a larger, richer, higher-res screen for watching movies. Perhaps this step down wouldn't bother me if I owned a connected TV or a set-top box with Netflix access, but I don't, and as you'd imagine, I don't enjoy streaming all three seasons of *Arrested Development* on a dim, reflective display. Truth be told, the new 15-inch Series 9 and its SuperBright Plus panel would likely be the perfect work-play laptop for me — if I could afford it. But no matter. If we're talking about PCs fast, light, longevous and ergonomically sound enough to tote around when you need a break from your main squeeze, the Folio 13 is going to make a lot of people happy. *— Dana Wollman*





VIDEO JOURNALIST AND NETBOOKNEWS CO-FOUNDER NICOLE SCOTT SOUNDS OFF ON ANDROID BATTERY LIFE, FURBY AND LONG-WINDED EMAILS.

NICOLE SCOTT

Q&A

What gadget do you depend on most? My Lenovo X220. Running a site that focuses on mobile computing, I spend a lot of time blogging on the road, so I need an extremely rugged computer that gives me 24 hours of battery life and lets me video edit without running around for a power outlet.

Which do you look back upon most fondly? My Palm Pilot m500 with Bluetooth keyboard. It was the first time I tried to replace a laptop with a mobile device. It had a whopping 8MB of onboard memory. And you know what? It totally worked!

Which company does the most to push the industry? Apple. Their innovations push the industry forward forcing everyone to bring better products to market. Whether you love 'em or hate 'em you can't deny that the consumer wins when competition is high.

What is your operating system of choice? Windows 7, I went over to OSX for a while because I'm heavy into video editing, but the AVCHD codec issues with Final Cut Pro drove me back to Windows. Cyberlink PowerDirector 10 has really optimized Intel's Quick Sync Video for 1/4-1/5th real time HD export. That in combination with no import time has me back on Windows.

What are your favorite gadget names? Voodoo Envy tops my list. 13.3 inches, and upon release the thinnest notebook on the market with its carbon fiber case. I literally swooned. I'm also going to throw Netbook into the ring, it's cute, and I love the way they shook up the mobile computing ecosystem when they came into the market.

What are your least favorite? I'm not sure if Furby is a gadget or a toy, regardless, the name is synonymous with that eery feeling of walking down a dark alley late at night in a bad part of town... I can't help it, it creeps me out!

Which app do you depend on most? Google Maps. I'm mostly in Taiwan, so trying to give directions in Chinese is challenging when one wrong tone can lead to a wrong address.

What traits do you most deplore in a smartphone? When the mobile experience is short just one step of being useful. On Windows Phone 7, the terrible Google maps integration is extremely aggravating, you can't even properly open dropped pins. On Android, battery life leaves a lot to be desired, so when my phone dies, it lets

That it would have week-long battery life with heavy internet usage. I'm starting to see a trend here, I hate cords and being connected, the less I have to plug in the better.

me down. Unacceptable in my world.

Which do you most admire? Android's ability to be mutated through ROMs & Skins to suit your ideal workflow.

What is your idea of the perfect device? One with a week-long battery life, where all of my information is seamlessly integrated and I'm able to share information without the limitation of an operating system.

What is your earliest gadget memory? Playing word and colour association games on a Commodore 64 while wishing my dad would get back to playing Dungeons and Dragons.

What technological advancement do you most admire? Besides the obvious answer of the internet, I have to admit that I love the mobile phone. I moved to Australia in 1999 where text messaging was already standard. The way I made plans and developed friendships changed because of this medium. When I returned to Canada we didn't even have cross-carrier text messaging and I felt as if there was a void in my life. That was the first time that I realized how technology was fundamentally changing the way human society was evolving and how humans communicated. That moment of realization is why I became so interested in technology.

Which do you most despise? I love that we have lots of apps to get things done but I hate that so many of them have poorly designed UIs.

What fault are you most tolerant of in a gadget? Screen resolution, when you hear that, "This would be the perfect gadget, if it wasn't for the screen resolution," I roll my eyes.

Which are you most intolerant of? Battery life. If I have to interrupt my flow to search for a power outlet, my gadgets have failed me.

When has your smartphone been of the most help? I live in Taiwan and only speak very basic Chinese. In my daily life it shows taxi drivers where to go, shop keepers photos of things I need and friends' locations I can't pronounce or read. I couldn't be based in Taipei with out it.

What device do you covet most? I might say something like the Lenovo Yoga, but since it's got over six months until release I'm going to say something yet to be announced running Ivy Bridge. We're going to see a lot of new devices hitting the streets in the next few months with Windows 8 and Ivy Bridge on the way, so I'm going to say an Ivy Bridge Ultrabook that will make you shed a tear because it's so beautiful.

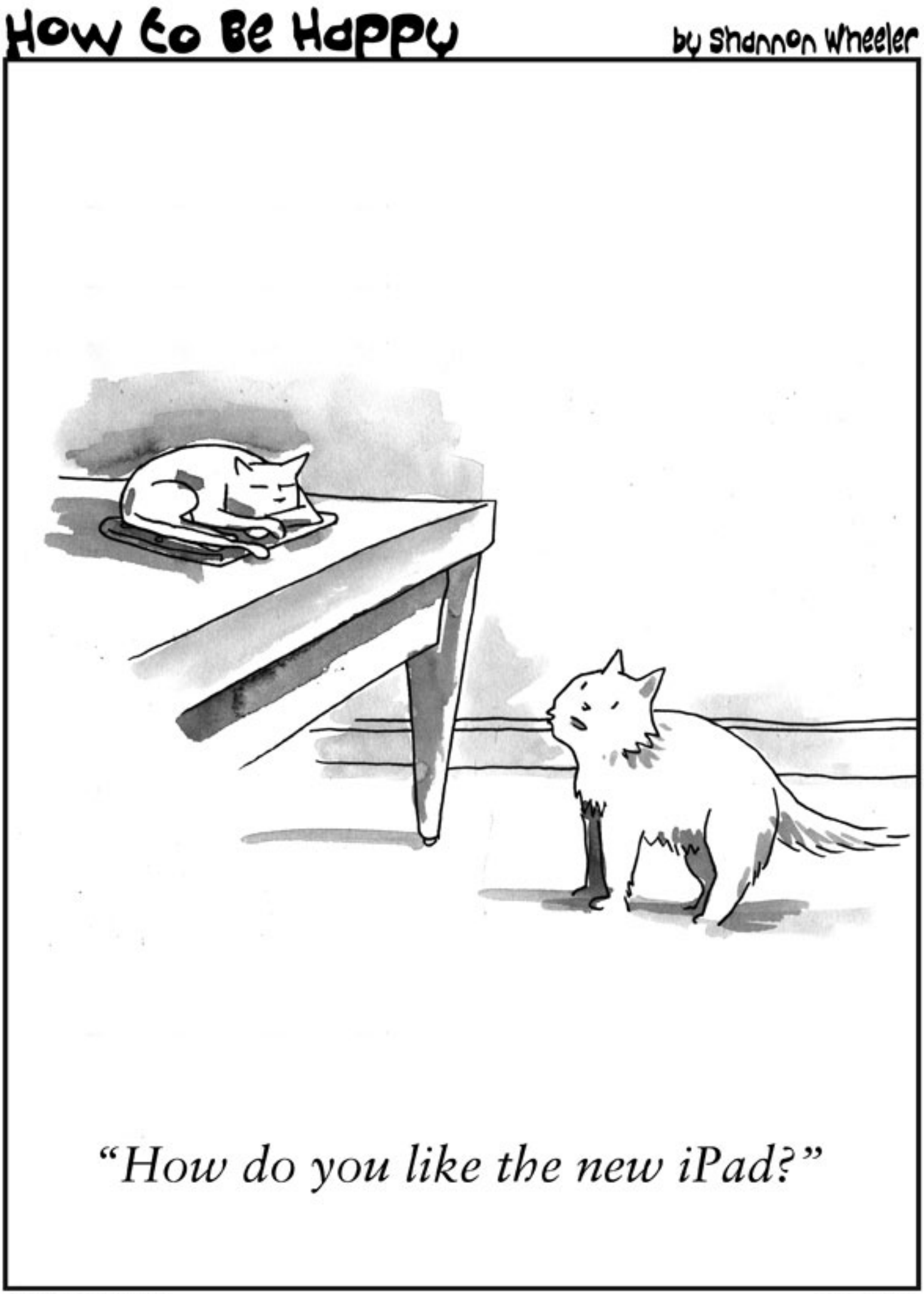
If you could change one thing about your phone what would it be?

ANSWER

What does being connected mean to you? I first truly understood what being connected was in 2001 when I watched a 'Smart Mob' in the Philippines topple the Estrada government. A simple text message motivated a million people to gather in a single day. Being connected to me equals potential.

When are you least likely to reply to an email? When people ask too many questions or advice in one email, keep it short and to the point. Or if it gets buried and I forget about it... it happens.

When did you last disconnect? Burning Man 2011.



The Last Word - Shannon Wheeler

engadget distro

Editor-in-chief, Engadget	Tim Stevens
Executive Editor, Distro	Christopher Trout
Executive Assistants, Distro	Billy Steele / Jon Turi
Managing Editor	Darren Murph
Senior Associate Editors	Don Melanson / Brian Heater / Zach Honig
	Richard Lai / Michael Gorman / Amar Toor
	Sharif Sakr
Associate Editors	Joe Pollicino / Sean Buckley / Joseph Volpe
	Terrence O'Brien
Senior Mobile Editor	Myriam Joire
Associate Mobile Editor	Brad Molen
Contributing Mobile Editors	Sean Cooper / Zachary Lutz
Senior HD Editor	Richard Lawler
Contributing HD Editor	Ben Drawbaugh
Reviews Editor	Dana Wollman
Contributing Editors	Kevin Wong / Mat Smith / James Trew
	Daniel Cooper / Lydia Leavitt / Dante Cesa
	Edgar Alvarez
Senior Chinese Editor	Andy Yang
Senior Columnist	Ross Rubin
Illustrators	Box Brown / Dustin Harbin / Shannon Wheeler

Editorial Director	Joshua Fruhlinger

App Platform / Creative	**AOL Mobile**
Creative Leads	Jeremy LaCroix / David Robinson
Designers	Will Lipman / Portia Monberg / Aaron Martin
Contributing Designers	Josh Klenert / Candy Mayo
	Davy Reynolds / Brendan Dalton
Product Manager	Luan Tran
Architects	Scott Tury / Todd Brannam
Developers	Kyle Lu / Scott Tury / Mike Levine
	Ron Anderson / Terence Worley
	Chaitanya Muppa / Tejas Lagvankar
	Sudheer Agrawal / Jared Sheehan
Tech Leadership	Bob Ward / Larry Aasen
QA	Harry Bowen Jr. / Moncef Belyamani
	Basil Darwaza / Eileen Miller
	James Baxter / Scott Basham

Sales	Mandar Shinde / Alice Hawari

ADVERTISEMENT

engadget

The real-time source and final word for news on gadgets and technology.

download engadget for iPad

